SONY

3-798-124-**22**(1)

# DME Switcher

Model:

## DFS-300/300P

## Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

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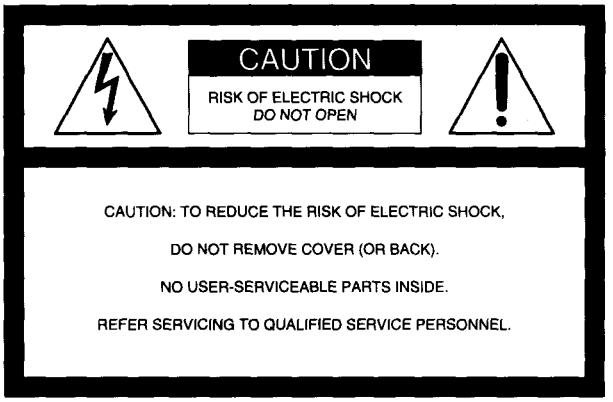
## Owner's Record

The model and serial numbers are located on the rear panel. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

## WARNING

**To prevent fire or shock hazard, do not expose the unit to rain or moisture.**


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**For customers in Europe**

### WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

**For customers in the USA**

### WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

**For customers in Canada**

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

### WARNING (For customers in the United Kingdom)
### THIS APPARATUS MUST BE EARTHED

**IMPORTANT**

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow: Earth
Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

# Table of Contents


**Chapter 1 Introduction**

**Features** ..... **1-2**
**Optional Boards and Control Panel Mount Adaptor** ..... **1-5**
**Precautions** ..... **1-6**
Safety Precautions ..... 1-6
Handling Precautions ..... 1-6

**Chapter 2 Location and Function of Parts and Controls**

**Control Panel** ..... **2-2**
**Processor Unit** ..... **2-18**
Rear Panel ..... 2-18
Front Panel and Internal Boards ..... 2-20

**Chapter 3 Tutorial**

**Sequence of Operations** ..... **3-2**
**Executing Special Effects** ..... **3-3**
Executing a Wipe Effect ..... 3-3
Executing a Picture-in-Picture Effect ..... 3-6
**Viewing the Special Effects Demonstration** ..... **3-9**

**Chapter 4 Basic Operations**

**Selecting Pictures** ..... **4-2**
**Selecting Effects** ..... **4-5**
Choosing a DFS-300/300P Effect ..... 4-5
Selecting Effects With Pattern Buttons ..... 4-11
Selecting Effects With Pattern Numbers ..... 4-12
**Modifying the Edge — Border and Soft Edge** ..... **4-14**
**Changing the Location and Size of a Pattern — Location (X), (Y), (Z)** ..... **4-15**
**Modifying a Pattern — User-Modifiable Effects** ..... **4-17**
**Superimposing Characters and Graphics 1 — Title Key** ..... **4-19**
Luminance Key ..... 4-19
Chroma Key ..... 4-22
Mask — Hiding Part of a Title ..... 4-24
**Superimposing Characters and Graphics 2 — Downstream Key** ..... **4-25**
**Setting a Transition** ..... **4-30**
Setting the Transition Duration ..... 4-30
Setting the Transition Direction ..... 4-31
**Executing the Effect** ..... **4-33**
**Adjusting Color Mattes** ..... **4-36**
**Adjusting the Color Balance — Color Corrector** ..... **4-38**

# Table of Contents


**Chapter 5 Advanced Operations**

**Changing Direct Pattern Assignments** ..... **5-2**
**User Program Effects** ..... **5-4**
Designing User Program Effects ..... 5-4
Creating New User Program Effects ..... 5-10
Editing User Program Effects ..... 5-12
Executing User Program Effects ..... 5-18
Deleting User Program Effects ..... 5-19
**Snapshots** ..... **5-20**
Registering Snapshots — Learn ..... 5-21
Recalling Snapshots — Recall1 ..... 5-22

**Chapter 6 Control From Editing Control Units**

**Control From the PVE-500** ..... **6-2**
Cut Editing ..... 6-3
A-Roll Editing ..... 6-4
A/B Roll Editing ..... 6-6
**Control From the RM-450** ..... **6-8**
**Control From the BVE-600** ..... **6-11**
A-Roll Editing ..... 6-12
A/B Roll Editing ..... 6-13
**Control From the BVE-900/2000 Series** ..... **6-14**
**Control Using GPI Signals** ..... **6-17**
A-Roll Editing ..... 6-18
A/B Roll Editing ..... 6-19

**Chapter 7 Connections and System Settings**

**Connections** ..... **7-2**
Essential System Connections ..... 7-2
Key Signal Connections ..... 7-3
A-Roll Editing System Connections ..... 7-4
A/B Roll Editing System Connections ..... 7-5
**Settings of the Internal Switches** ..... **7-7**
**Power Supply and Initialization** ..... **7-8**
**Installation of Optional Boards** ..... **7-10**

**Appendixes**

**Warnings and Error Messages** ..... **A-2**
**Types of Effects** ..... **A-3**
**Effect Parameters** ..... **A-4**
**Effects Classified by Direction Type** ..... **A-6**
**Effect Control Parameters** ..... **A-7**
**Effect Pattern Image List** ..... **A-11**
**Additional Functions** ..... **A-28**
**Specifications** ..... **A-34**
**Glossary** ..... **A-37**

**Index** ..... **I-1**

# Chapter 1
# Introduction

This chapter describes the features and optional accessories of the DFS-300/300P. It also discusses some important safety and handling precautions.

**Features** ..... **1-2**
**Optional Boards and Control Panel Mount Adaptor** ..... **1-5**
**Precautions** ..... **1-6**
Safety Precautions ..... 1-6
Handling Precautions ..... 1-6

# Features



The DFS-300/300P DME Switcher is a compact, high-performance video switcher consisting of a control panel and a processer. It supports more than 300 native digital special effects, and allows users to create and store their own program effects.

## Special effects without TBC

Two built-in frame synchronizers allow you to apply special effects while editing without requiring the connection of an external time base corrector (TBC).

## Sophisticated DME (Digital Multi Effects) special effects

The DFS-300/300P supports a rich variety of special effects, ranging from editing effects such as cuts, mixes, and wipes (111 effects) to sophisticated DME patterns such as slide, mirror, mosaic, and picture-in-picture (239 effects). If you install the BKDF-301/301P 3D Effect Option board, you can also apply three-dimensional effects such as 3D rotation, page turn, and sphere.
All of these effects are selectable through simple operations on the control panel. Some of the effect patterns can be modified by edge, location and rotation functions.

## User program effects

The control panel has buttons that make it easy to create and store up to 20 of your own special effects. Effects you create can be executed in the same way as the effects built into the DFS-300/300P. If you install the BKDF-301/301P 3D Effect Option board, you can store an additional 20 effects, for a total of 40 user program effects.

## Variable transition durations

You can vary the transition duration of effects such as wipes, mixes and downstream key mix in steps of one frame within a range of 0 through 999 frames, and execute the transitions automatically.

## Control panel snapshots

You can store up to 100 snapshots of control panel settings in internal snapshot memory. This makes it easy to restore the control panel to a specific state whenever necessary.

## Built-in signal generators

The DFS-300/300P has built-in signal generators for color background, border matte, and effect matte signals. By installing the optional BKDF-504/504P DSK Board, you can equip the unit with downstream key matte and downstream key border matte generators, for a total of five internal matte signal generators.
To add variety to title backgrounds, 31 emboss patterns are available for color background mattes. The DFS-300/300P also features built-in color bar and grid patterns.

## Three-dimensional functions for impressive visual effects

When the BKDF-301/301P 3D Effect Option board is installed, you can use impressive special effects such as 3D rotation, 3D flip, page turn, twist, and sphere.

## Title modes

You can apply special effects to characters and graphics input to the primary input connectors, and use them as key signals for superimposed titles. You can choose between luminance key, which extracts signals of a specified brightness, and chroma key, which extracts signals of a specified hue. You can also use external key signals input to the key signal input connectors as key sources.

## Color corrector

The DFS-300/300P has a built-in color corrector function which can be applied to the primary inputs. This allows you to adjust the white balance and color balance of video input signals.

## Input/output connectors for numerous signal formats

The DFS-300/300P has input/output connectors for composite, component, and S-video (Y/C separate) signals, allowing it to accept video input from a wide variety of sources.

- **Primary video inputs (3 formats, 4 inputs)**
  For three of the four primary inputs, you can select any of three formats (composite, component, and S-video).
  For the remaining primary input, you can select either component or RGB signals.
- **Program video outputs (3 formats, 6 outputs)**
  There are two output connectors for each of three formats. All six output connectors can be used simultaneously.

# Features



## Sync input/output connectors for greater editing precision

Black burst output connectors allow you to synchronize external equipment with the DFS-300/300P. To synchronize the DFS-300/300P with external equipment, a gen-lock input connector is included. These connectors allow you to perform highly accurate editing.

- Black burst (3 outputs)
- Gen-lock (1 input)

## Key signal input for superimposing characters or graphics

The DFS-300/300P has input/output connectors for title key and downstream key signals, allowing you to superimpose characters and graphics generated by external equipment. (To use the downstream key functions, you need to connect the optional BKDF-504/504P DSK Board.)

- External key source input for title key (1 input)
- Key fill input for downstream key (1 input)
- External key source input for downstream key (1 input)

## Key signal output for other switchers

The DFS-300/300P can supply key source signals to another video switcher.

- Key source output (1 output)

## Interface with editing control units

The DFS-300/300P has input/output connectors for two types of control signals, allowing you to construct editing systems for a variety of purposes. You can use it with a PVE-500, BVE-600, or BVE-2000 Series Editing Control Unit to construct an A/B roll editing system (two players and one recorder). You can also use it with an RM-450 or PVE-500 Editing Control Unit to construct an A-roll editing system (one player and one recorder) capable of special effects editing.
The DFS-300/300P also offers GPI (General Purpose Interface) signal control, allowing you to use it in an even wider variety of editing environments.

- 9-pin interface connector (1 input/output)
- Cue/trigger/GPI connector (2 inputs)

## Rack mounting

The processor unit of the DFS-300/300P can be mounted in an EIA standard 19-inch rack. You can also use the optional BKDF-503 Control Panel Mount Adaptor to mount the control panel in a console.

# Optional Boards and Control Panel Mount Adaptor

The following optional boards and control panel mount adaptor are available for the DFS-300/300P through your local Sony representative.



## BKDF-301/301P 3D Effect Option

This board provides 130 special effects, including three-dimensional effects such as 3D rotation and 3D flip, as well as non-linear effects such as page turn, twist, and sphere. It also allows you to use perspective with some of the effects built into the DFS-300/300P, and increases the amount of memory available for storing user program effects. With the board installed, you can create and store up to 20 non-linear effects, for a total of 40 user program effects.
Install the BKDF-301/301P board on the processor unit's internal MY-62 circuit board.

*For details, refer to the Operating Instructions supplied with the BKDF-301/301P.*

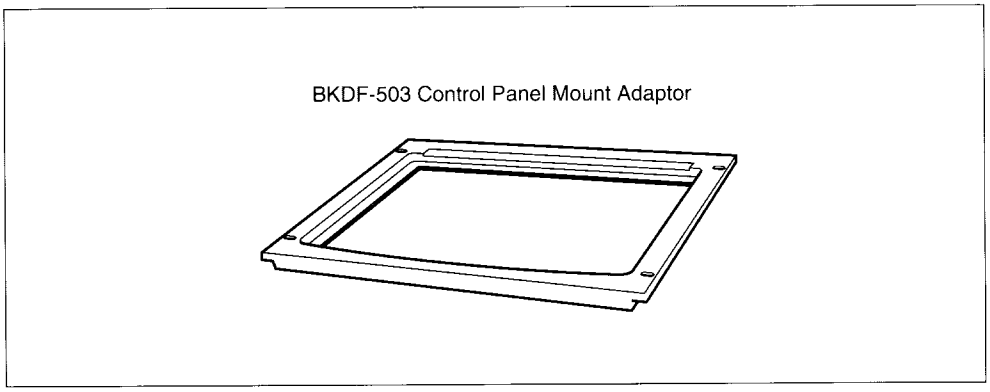
## BKDF-504/504P DSK Board

This board provides downstream key functions, allowing you to superimpose characters and graphics over a final program picture composed of background and foreground video.
Install the BKDF-504/504P board on the processor unit's internal DA-79 circuit board.

*For details, see "Installing Optional Boards" on page 7-10.*

## BKDF-503 Control Panel Mount Adaptor

You can use the BKDF-503 Control Panel Mount Adaptor to mount the control panel of the DFS-300/300P in a console.
Insert the control panel into the mount adaptor, and secure the mount adaptor to the console using the screws supplied with the mount adaptor.




BKDF-503

# Precautions

## Safety Precautions

### Power supply

- Operate the unit only with a power source complying with the requirements listed in "Specifications" on page A-34.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.

### Cabinet

Never drop flammable or metal objects into the cabinet, or spill liquids into it. Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

### In case of malfunction

- If the unit emits an unusual sound or smell, turn off the power immediately, disconnect the power cord, and contact your Sony dealer.
- If the DC-powered cooling fan in the processor unit malfunctions, a warning tone sounds and the message "FA" alternates with the current pattern number in the PATTERN NUMBER display control panel. Turn off the power and contact your Sony dealer.

## Handling Precautions

### Location

Do not use or store the unit under any of the following conditions:

- In excessive heat and cold (permissible temperature range: 0°C to 40°C (32°F to 104°F)).
- In direct sunlight or near heaters.
- In damp or dusty locations.
- In places subjected to violent vibration.

### Protection from impact

Do not drop the unit or subject it to strong vibrations.

### Ventilation

Allow adequate air circulation to prevent internal heat buildup.

### Maintenance

Clean the cabinet with a soft, dry cloth. To remove persistent stains, moisten the cloth with a small amount of neutral solvent, and finish by wiping with a dry cloth. Do not use alcohol, benzine, thinner, or volatile liquids, as these may discolor or damage the surface.

### Transportation

Transport the unit in the supplied carton or a protective case.

# Chapter 2
# Location and Function of Parts and Controls

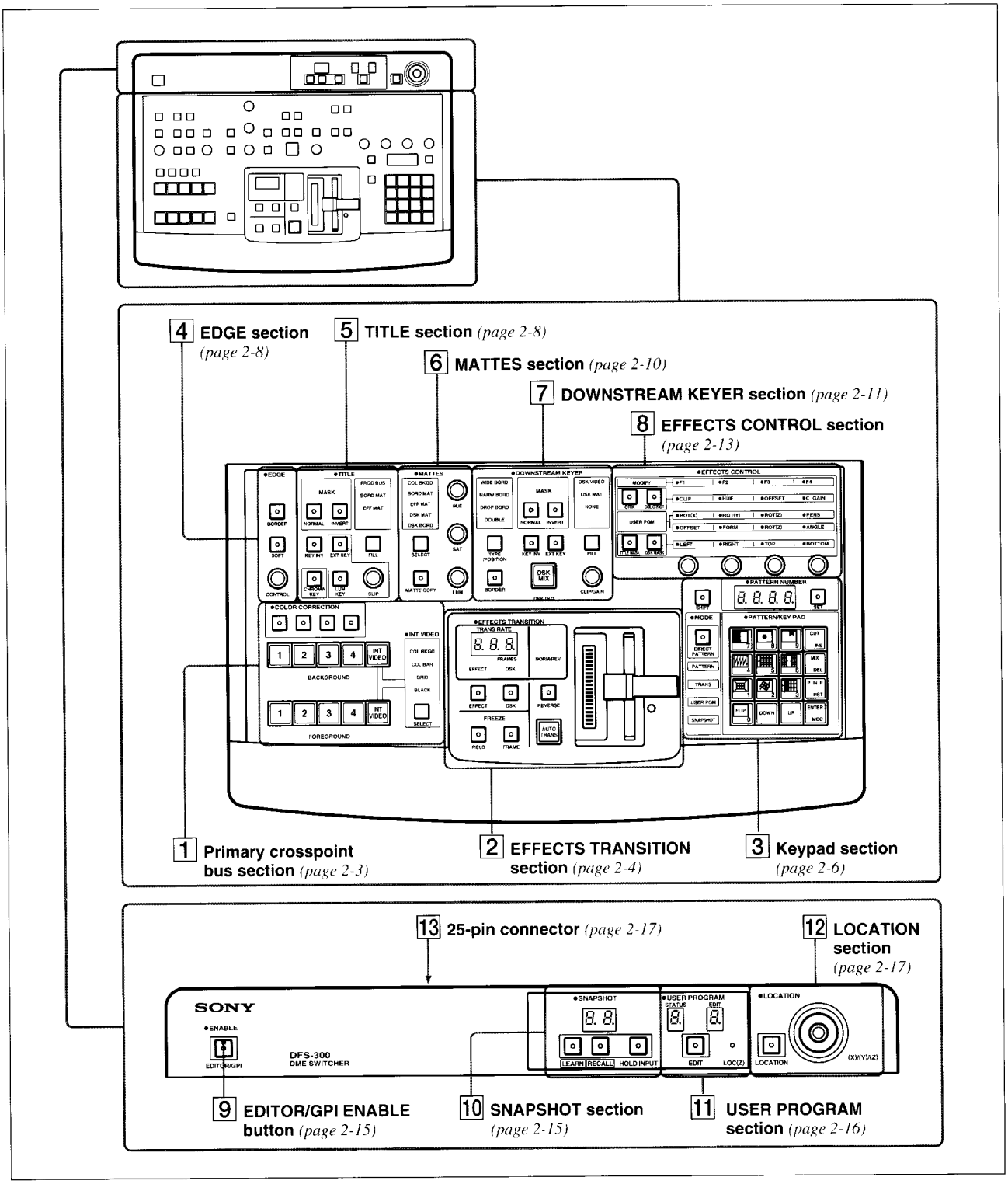
This chapter describes the parts and controls of the DFS-300/ 300P.

**Control Panel** ..... **2-2**
**Processor Unit** ..... **2-18**
Rear Panel ..... 2-18
Front Panel and Internal Boards ..... 2-20

# Control Panel

The control panel is made up of several operational sections. This section illustrates and explains the controls in each of the operational sections.

*For details, see the pages indicated in parentheses.*


4 EDGE section (page 2-8)
5 TITLE section (page 2-8)
6 MATTES section (page 2-10)
7 DOWNSTREAM KEYER section (page 2-11)
8 EFFECTS CONTROL section (page 2-13)
1 Primary crosspoint bus section (page 2-3)
2 EFFECTS TRANSITION section (page 2-4)
3 Keypad section (page 2-6)
13 25-pin connector (page 2-17)
12 LOCATION section (page 2-17)
SONY
DFS-300
DME SWITCHER
9 EDITOR/GPI ENABLE button (page 2-15)
10 SNAPSHOT section (page 2-15)
11 USER PROGRAM section (page 2-16)

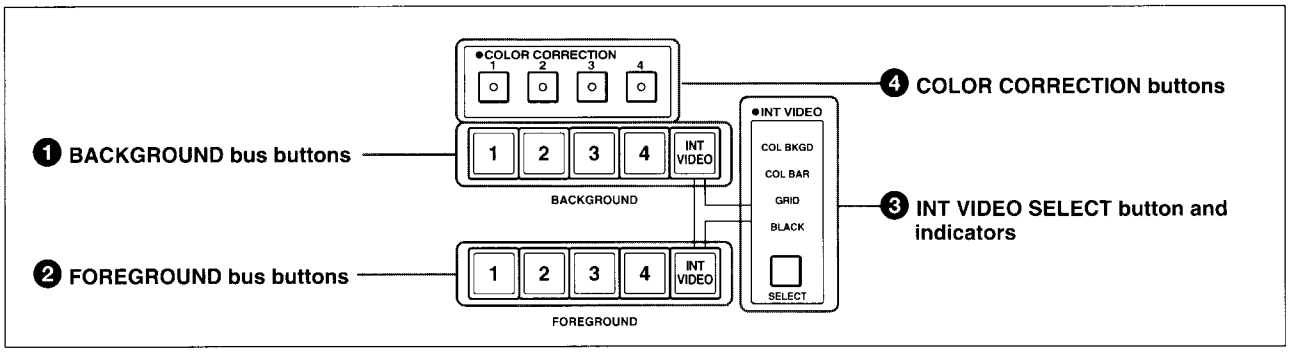
Control panel

**Note**

If you perform an operation incorrectly, a warning tone sounds and the corresponding buttons, displays and the SHIFT button flash three times.

## 1 Primary crosspoint bus section

This section consists of buttons used to select the background and foreground video.




Primary crosspoint bus section

### 1 BACKGROUND bus buttons

Press to select a video source for the background picture (the picture which is replaced as an effect progresses).

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel of the processor unit. When you press a button, the button lights and the video input to the corresponding connector is selected.

Press the INT VIDEO button to select an internally generated video signal, as selected by the INT VIDEO SELECT button 3.

The BACKGROUND bus buttons light in red when the selected signals are being output from the PGM OUT connectors on the rear panel.

### 2 FOREGROUND bus buttons

Press to select a video source for the foreground picture (the picture which replaces the background pictures as an effect progresses).

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel of the processor unit. When you press a button, the button lights and the video input to the corresponding connector is selected.

Press the INT VIDEO button to select an internally generated video signal, as selected by the INT VIDEO SELECT button 3.

The FOREGROUND bus buttons light in either red or amber. They light in amber to indicate that the signal is selected, and light in red to indicate that the selected signals are being output from the PGM OUT connectors on the rear panel.

### 3 INT (internal) VIDEO SELECT button and indicators

Press this button to select a video signal generated by one of the unit's built-in video signal generators as the background or foreground picture, or before executing an effect that uses an internal video signal during the transition. Each time the button is pressed, one of the following indicators lights to indicate the selected signal.

**COL BKGD:** A color background signal
**COL BAR:** A color bar signal
**GRID:** A grid pattern signal
**BLACK:** A black burst signal

When you select the color background signal, you can select from among 31 pattern signals (emboss patterns) in addition to the internal color matte signal. With the COL BKGD indicator lit, press the UP or DOWN button in the keypad section 3 while holding down a lit button in the FOREGROUND or BACKGROUND bus rows.

### Changing FOREGROUND or BACKGROUND bus button labels

If you wish, you can insert one of the supplied labels (VTR, CAM, etc.) in place of the FOREGROUND or BACKGROUND bus button labels. Replace the labels in the same way that you replace PATTERN/KEY PAD button labels.

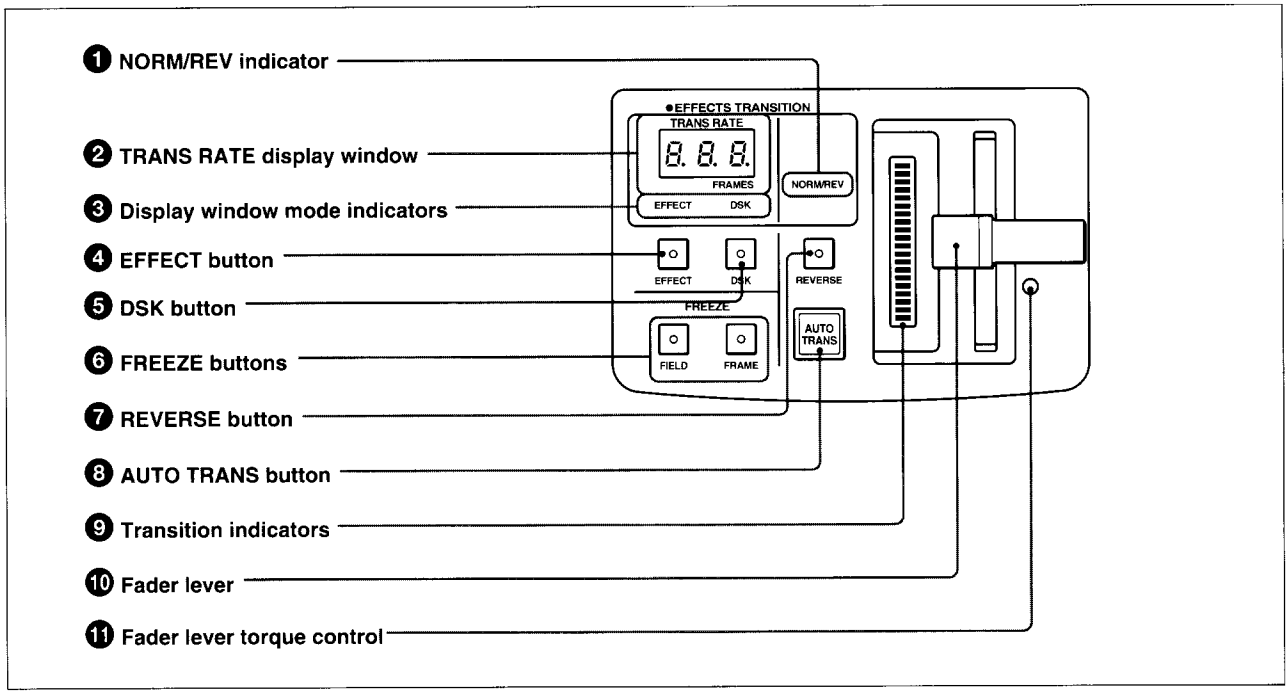
*For details, see page 5-3.*

### ❹ COLOR CORRECTION buttons

Buttons 1 through 4 correspond to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel. When you press a button, the button lights and the video input to the corresponding connector is subjected to color correction.
Adjust the amount of color correction with the knobs in the EFFECTS CONTROL section [8].

## [2] EFFECTS TRANSITION section

This section consists of buttons and controls used to control effect transitions and downstream key transitions.




EFFECTS TRANSITION section

### ❶ NORM/REV (normal/reverse) indicator

Lights when an effect with normal/reverse motion (animation or title key) is executed.

**Note**

This indicator does not light when the processor unit's internal editing control unit select switch is set to BVE-600 or RM-450. *(See page 2-22.)*

### ❷ TRANS RATE (transition rate) display window

Shows the transition duration of an effect or downstream key in units of frames. The duration is displayed as a three-digit number. The dots next to the digits light while you are entering the duration.

### ❸ Display window mode indicators

Show the kind of transition duration being displayed in the TRANS RATE display window ❷.

**EFFECT:** An effect transition duration

**DSK:** A downstream key transition duration

### ❹ EFFECT (effect duration entry mode) button

Press this button to enter an effect transition duration. This button, the EFFECT indicator ❸, and the TRANS data entry mode indicator in the keypad section [3] light. Enter the duration using the PATTERN/KEY PAD buttons in the keypad section [3], and press the ENTER button.

Press the EFFECT button again to extinguish the indicators and leave effect duration entry mode.

**Note**

If you press the EFFECT button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter effect duration entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.

### ❺ DSK (downstream key duration entry mode) button

Press this button to enter the duration of a downstream key effect transition. This button, the DSK indicator ❸, and the TRANS indicator in the keypad section [3] light. Enter the duration using the PATTERN/KEY PAD buttons in the keypad section [3], and press the ENTER button.

Press this button again to extinguish the indicators and leave downstream key duration entry mode.

**Note**

If you press the DSK button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter effect duration entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.

### ❻ FREEZE buttons

Press to freeze the background picture during an effect transition.

**FIELD button:** When you press this button, the button lights and the background picture freezes in field freeze mode.

**FRAME button:** When you press this button, the button lights and the background picture freezes in frame freeze mode.

To leave freeze mode, press the button again to extinguish it.

### ❼ REVERSE button

Press to reverse the direction of a transition. The direction is reversed when the button is lit, and normal when the button is not lit. After execution of an effect with back-and-forth motion, the direction reverses automatically and this button lights or goes out automatically. It lights if you executed the effect in the normal direction, and goes out if you executed it in the reverse direction.

### ❽ AUTO TRANS (automatic transition) button

Press to execute an automatic effect transition, using the preset transition duration. The button lights during the transition. If you press this button while it is lit, the transition pauses, and resumes when you press this button again.

If you press this button with the fader lever ❿ located at a point between the top and bottom positions, the transition will pause at that point when you execute the effect.

### ❾ Transition indicators

These are 20 LED indicators which light to show the progress of effect transitions.

### ❿ Fader lever

Slide the lever to execute a transition manually.

**Note**

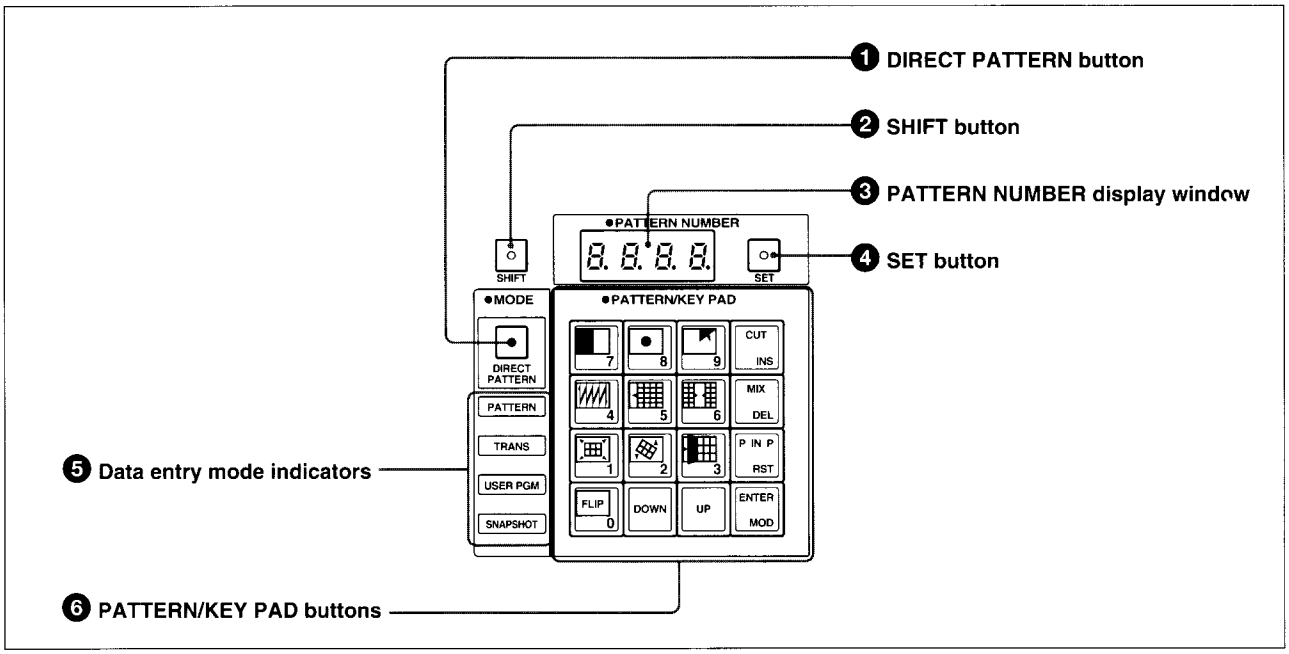
After powering the unit on, activate the fader lever by moving it up and down to the top and bottom positions.

### ⓫ Fader lever torque control

When turned with a small Phillips screwdriver, adjusts the torque of the fader lever. Turn it clockwise to increase the torque, and counterclockwise to decrease it.

## 3 Keypad section

This section consists of buttons used for data entry and effect pattern selection.




Keypad section

### ❶ DIRECT PATTERN button

Press this button, turning it on, to put the unit into direct pattern select mode. Each of the PATTERN/KEY PAD buttons ❻ (except the UP, DOWN, and ENTER buttons) has an assigned pattern. When this button is lit, you can select these patterns by pressing the buttons.
The unit enters direct pattern select mode when it is powered on, and when it leaves one of the data entry modes.

**Note**

If you press the DIRECT PATTERN button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter direct pattern select mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section 11 to extinguish it.

### ❷ SHIFT button

Press to select shift-button functions.
The names of shift-button functions are printed on the control panel in orange letters. Press this button together with the function button to select the shift-button function.
The SHIFT button also flashes when warning tones sound to alert you to incorrect operations on the control panel.

### ❸ PATTERN NUMBER display window

Displays the effect pattern number as a four-digit number. The dots next to the digits light while you are entering a pattern number. In user program edit mode, effect pattern parameter values can be displayed here.

### ❹ SET (pattern number entry mode) button

Press this button, turning it on, to put the unit into pattern number entry mode. The PATTERN indicator ❺ lights. In this mode, you can use the PATTERN/KEY PAD buttons ❻ to enter an effect pattern number.
Press the button again to extinguish it and leave pattern number entry mode.

**Note**

If you press the SET button while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter pattern number entry mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section 11 to extinguish it.

### ❺ Data entry mode indicators

Light to indicate that the PATTERN/KEY PAD buttons ❻ are being used for data entry rather than for direct pattern selection. The indicator corresponding to the data entry mode lights.

**PATTERN:** Pattern number entry mode.
Use this mode when you want to execute an effect after entering its pattern number. To select this mode, press the SET button ❹.

**TRANS:** Transition duration entry mode.
Enter the transition duration of an effect or a downstream key effect in units of frames using the PATTERN KEY PAD buttons and the EFFECT TRANSITION section [2] buttons.

**USER PGM:** User program edit mode.
Create and edit a user program using the buttons and controls in the USER PROGRAM section [11], the EFFECTS CONTROL section [8], and the LOCATION section [12].

**SNAPSHOT:** Snapshot number entry mode.
Enter a snapshot number in the range from 0 to 99 to save the current control panel settings or recall the saved control panel settings. Select this mode with the buttons of the SNAPSHOT section [10], and enter the number with the PATTERN/KEY PAD buttons.

### ❻ PATTERN/KEY PAD buttons

Function as shown in the following table, according to the currently selected operational mode.

### Changing PATTERN/KEY PAD button labels

If you wish, you can insert one of the supplied labels in place of the PATTERN/KEY PAD button bus button labels.

*For details, see page 5-3.*

Functions of the PATTERN/KEY PAD Buttons

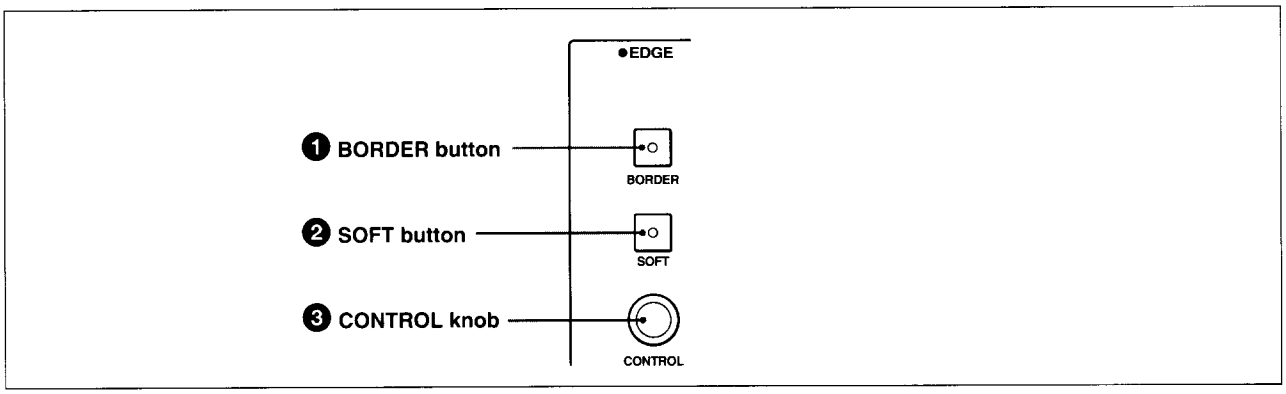
| Buttons | Mode | | | | |
|---|---|---|---|---|---|
| | DIRECT PATTERN | PATTERN | TRANS | USER PGM | SNAPSHOT |
| FLIP 0 to 9 | Select the pattern depicted on the button[a)] | Enter a pattern number | Enter a transition duration | Display parameter values | Enter a snapshot number |
| CUT INS | Selects CUT | — | — | Adds a key frame | — |
| MIX DEL | Selects MIX | — | — | Deletes a key frame | — |
| P IN P RST | Selects P IN P | Resets the entered value to 0 | Resets the entered value to 0 | Initializes parameters | Resets the entered value to 0 |
| UP | Adds one to the pattern number | Adds one to the selected pattern number | Adds one frame to the transition duration | Adds one to the key frame number | Adds one to the snapshot number |
| DOWN | Subtracts one from the pattern number | Subtracts one from the pattern number | Subtracts one frame from the transition duration | Subtracts one from the key frame number | Subtracts one from the snapshot number |
| ENTER MOD | — | Accepts the entered value | Accepts the entered value | Modifies key frame data | Accepts the entered value |

–: Not used

a) *For more information about the patterns assigned to these buttons, see pages 4-6 to 4-10.*

## 4 EDGE section

This section consists of buttons and controls used to adjust the border between foreground and background pictures.




EDGE section

### 1 BORDER button

Press this button, turning it on, to add a border line in the color selected for the built-in border matte at the edge between the foreground and background pictures. Press it again to extinguish the button and delete the border.

### 2 SOFT button

Press this button, turning it on, to blur the edge between the foreground and background pictures. Press it again to extinguish the button and sharpen the edge.

### 3 CONTROL knob

Adjusts the width of the border or the softness of the edge.

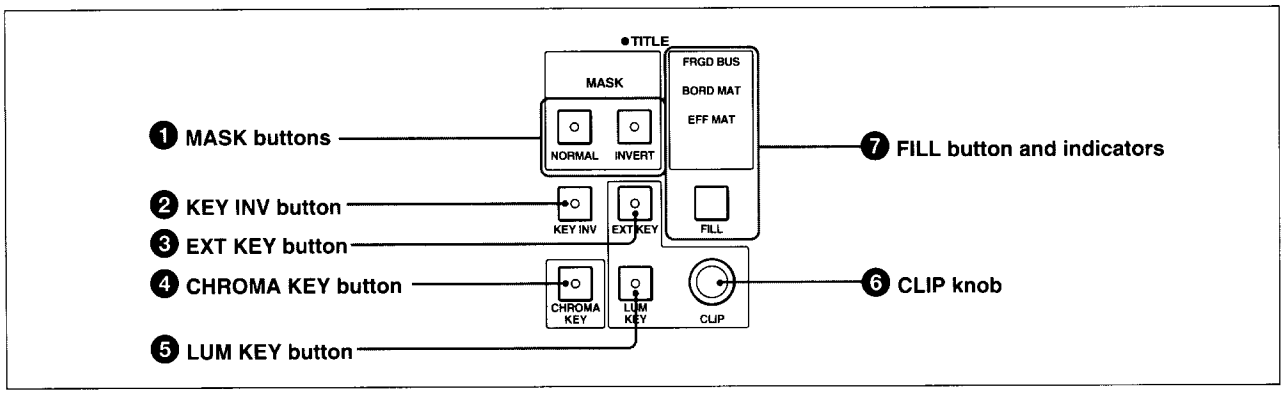
**Notes**

- Borders and soft edges cannot be used simultaneously.
- Borders and soft edges cannot be added to some effects. A warning tone sounds if you press the BORDER or SOFT button after selecting such an effect.

*For details, see "Effect Parameters" (page A-4).*

## 5 TITLE section

This section consists of buttons and controls used to make settings for a title key, which creates a program picture by superimposing foreground characters or graphics over a background picture. To generate the foreground characters or graphics, you can choose between luminance key, which extracts signals of a specified brightness, and chroma key, which extracts signals of a specified hue.




TITLE section

### ❶ MASK (key mask) buttons

Press one of these buttons, turning it on, to mask the portion of a superimposed signal which lies inside or outside a rectangular area in the picture. Press the button again to extinguish it and remove the mask.

**NORMAL button:** Mask the portion outside the rectangle.

**INVERT button:** Mask the portion inside the rectangle.

Use the buttons in the EFFECTS CONTROL section [8] to define the rectangle.

**Note**

The NORMAL and INVERT masks cannot be used simultaneously.

### ❷ KEY INV (key polarity inversion) button

Press this button, turning it on, to invert the polarity (black and white) of a luminance key source signal. Press the button again to extinguish it and restore the original polarity.

**Note**

This button is disabled when the CHROMA KEY button ❹ is lit.

### ❸ EXT KEY (external key) button

Press this button to select an external key source signal. The button lights, and the signal input to the EXT KEY IN connector is selected as the key source signal. Press the button again to extinguish it and select the default key source signal (a self-key source signal generated from the luminance signal of the video input to the VIDEO INPUTS connectors and selected with the FOREGROUND bus buttons).

**Note**

The signal input to the EXT KEY IN connector must be synchronized with the video input signals selected by the FOREGROUND bus buttons (the key fill signal).

### ❹ CHROMA KEY button

Press this button, turning it on, to select chroma key mode. In this mode, foreground signals are extracted with the key source on the basis of hue. Press the button again to extinguish it and leave chroma key mode.

To set the chroma key parameters (clipping level and hue), use the knobs in the EFFECTS CONTROL section [8].

### ❺ LUM KEY (luminance key) button

Press this button, turning it on, to select luminance key mode. In this mode, foreground signals are extracted with the key source on the basis of brightness. Press the button again to extinguish it and leave luminance key mode.

### ❻ CLIP (clipping level) knob

In luminance key mode, adjusts the clipping level (threshold luminance level) of the key source signal selected with the FOREGROUND bus buttons.

**Notes**

- You cannot use the CLIP control to adjust the clipping level of a signal input to the EXT KEY IN connector. To adjust the level, use the TITLE EXT KEY CLIP control on the internal AD-104 board in the processor unit.
- When luminance key mode is off, or when the EXT KEY button ❸ is lit, turning the CLIP knob sounds a warning tone.
- Set the chroma key clipping level with the CLIP knob in the EFFECTS CONTROL section [8].

### ❼ FILL button and indicators

Press the button to select the signals that fill empty areas in key source signals. Each time you press the button, one of the following indicators lights and the corresponding fill signal is selected.

**FRGD BUS:** The video selected with the FOREGROUND bus buttons

**BORD MAT:** A border matte

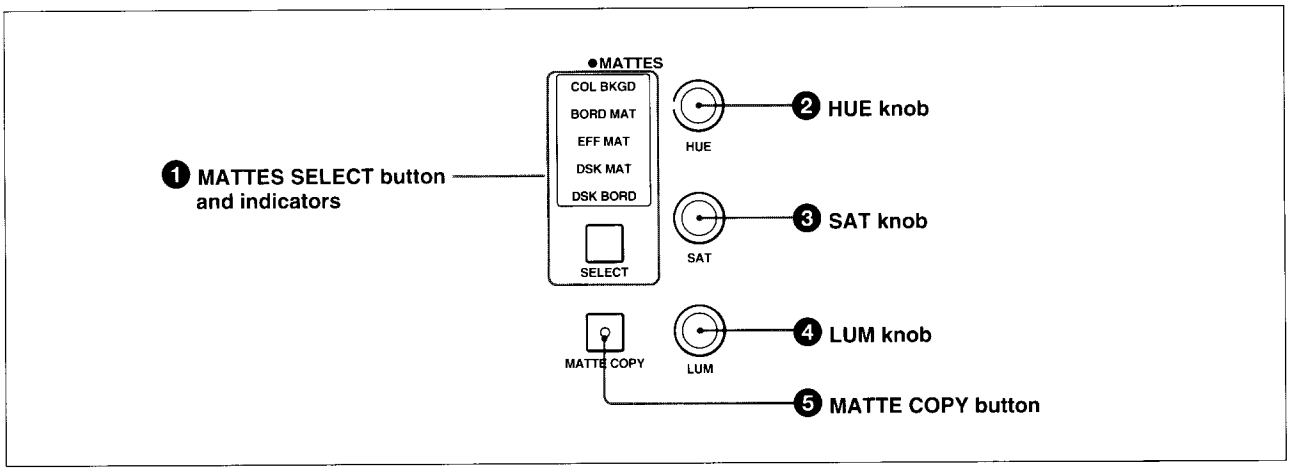
**EFF MAT:** An effect matte

**Note**

When you are using an external key source signal, you cannot use the color background selected by the FOREGROUND bus INT VIDEO button as a key fill signal. To use an internally generated matte as the key fill signal, select either BORD MAT or EFF MAT.

## 6 MATTES section

This section consists of buttons and controls used to adjust the three built-in color matte signals (color background, border matte, and effect matte) and the two matte signals made available when the optional BKDF-504/504P DSK Board is installed in the processor unit.




MATTES section

### ❶ MATTES SELECT button and indicators

Press the SELECT button to select a matte signal for adjustment. Each time you press the button, one of the following indicators lights and the corresponding matte signal is selected.

**COL BKGD:** The color background used for the internal video signal selected in the primary crosspoint bus section 1.

**BORD MAT:** The border matte used for borders selected in the EDGE section 4, and the key fill signal used for titles.

**EFF MAT:** The color matte used in effect patterns, and the key fill signal used for titles.

**DSK MAT:** The color matte used as a downstream key fill signal.

**DSK BORD:** The color matte used as the border of a downstream key signal.

**Notes**

- These color mattes are selected automatically when you press buttons in other sections. For example, when BORDER is selected in the EDGE section 4, a border matte is selected. If a matte is already selected, you do not need to select it again with the SELECT button.
- DSK MAT and DSK BORD cannot be selected unless you have installed the optional BKDF-504/504P DSK Board.

### ❷ HUE knob

Adjusts the hue of the color matte selected with the MATTES SELECT button ❶.

### ❸ SAT (saturation) knob

Adjusts the saturation of the color matte selected with the MATTES SELECT button ❶.

### ❹ LUM (luminance) knob

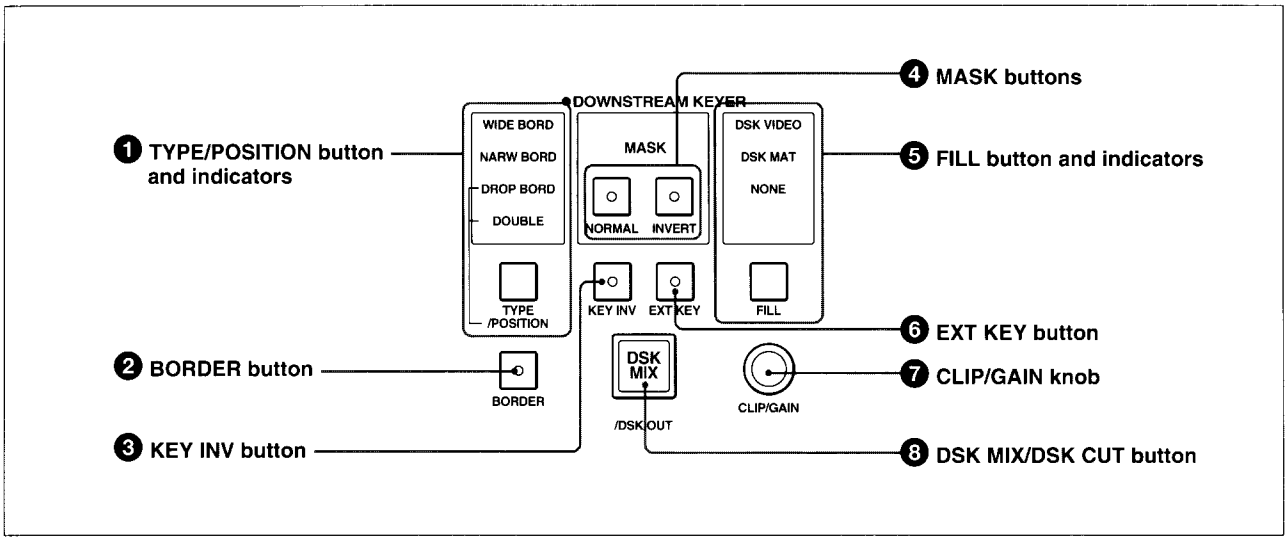
Adjusts the luminance of the color matte selected with the MATTES SELECT button ❶.

### ❺ MATTE COPY button

Press to copy the hue selected for a color matte onto another color matte.

## 7 DOWNSTREAM KEYER section

This section consists of buttons and controls used to make settings for a downstream key (DSK), which superimposes characters or graphics on a program picture made up of foreground and background video.




DOWNSTREAM KEYER section

**Notes**

- To use downstream key functions, you need to install the optional BKDF-504/504P DSK Board in the processor unit.
- Downstream key signals are input from the DSK VIDEO IN and DSK KEY IN connectors on the rear panel of the processor unit. These signals must be synchronized with the reference signal generated by this unit's built-in reference signal generator.

### 1 TYPE/POSITION button and indicators

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section 3.

- **Function when button is pressed alone (TYPE)**
  Press the button alone to select a downstream key border type. Each time you press it, one of the following indicators lights and the corresponding border type is selected.
  **WIDE BORD:** Wide border
  **NARW BORD:** Narrow border
  **DROP BORD:** Drop border (like a background shadow)
  **DOUBLE:** Double border (combination of narrow and drop borders)
- **Function when button is pressed with SHIFT button (POSITION)**
  Press the button together with the SHIFT button in the keypad section 3 to change the position where the border is added to the downstream key signal. Each time you press it, the position of the border changes in the order upper left, upper right, lower right, lower left.
  You can change the positions of drop and double borders only. A warning tone sounds if you press the key while the WIDE BORD or NARW BORD indicator is lit.

### 2 BORDER button

Press this button, turning it on, to add the selected border to the downstream key signal. Press the button again to extinguish it and delete the border.

### 3 KEY INV (invert) button

Press this button, turning it on, to invert the polarity (black and white) of a downstream key source signal. Press the button again to extinguish it and restore the original polarity.

### ❹ MASK buttons

Press one of these buttons, turning it on, to mask the portion of a downstream key signal which lies inside or outside a rectangular area in the picture. Press the button again to extinguish it and remove the mask.

**NORMAL button:** Mask the portion outside the rectangle.

**INVERT button:** Mask the portion inside the rectangle.

Use the buttons in the EFFECTS CONTROL section [8] to define the rectangle.

**Note**

The NORMAL and INVERT masks cannot be used simultaneously.

### ❺ FILL button and indicators

Press the button to select the signals that fill empty areas in downstream key source signals. Each time you press the button, one of the following indicators lights and the corresponding fill signal is selected.

**DSK VIDEO:** The video input to the DSK VIDEO IN connectors on the rear panel.

**DSK MAT:** The DSK board's internal fill matte.

**NONE:** No fill signal (border only).

**Note**

If you select NONE, the DSK border is turned on automatically. If you press the BORDER button ❷ to turn it off, no downstream key will be displayed when you press the DSK MIX/DSK CUT button ❽.

### ❻ EXT (external) KEY button

Press this button to select an external signal as the downstream key source signal. The button lights, and the signal input to the DSK KEY IN connectors on the rear panel of the processor unit is selected as the downstream key source signal. Press the button again to extinguish it and select the default downstream key source signal (the luminance signal of the video signal input to the DSK VIDEO IN connectors of the processor unit).

### ❼ CLIP/GAIN knob

This knob has two functions. Select them by rotating the knob alone, or by rotating it while pressing the SHIFT button in the keypad section [3].

- **Function when knob is rotated alone (CLIP)**
  Adjusts the clipping level (threshold luminance level) of the downstream key source signal input to the DSK VIDEO IN or DSK KEY IN connectors to define the outlines of inserted characters or graphics.
- **Function when knob is rotated with SHIFT button pressed (GAIN)**
  Adjusts the gain of the signal input to the DSK VIDEO IN or DSK KEY IN connectors to determine the sharpness of the outline.

**Note**

The CLIP/GAIN knobs is enabled only while a downstream key source signal is being used to insert a key into the picture. A warning tone sounds if you rotate the knob when no downstream key source signal is being used.

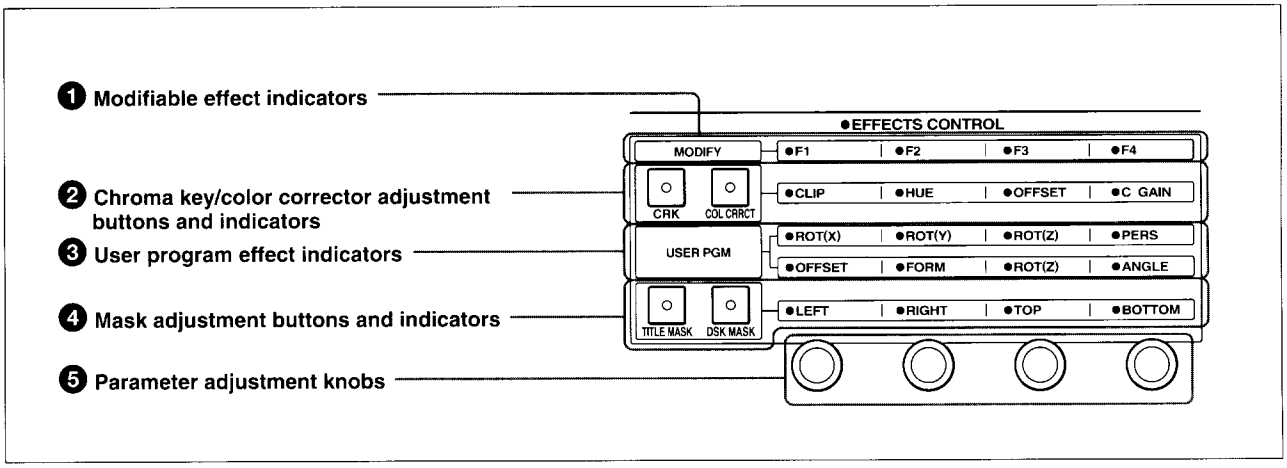
### ❽ DSK (downstream key) MIX/DSK CUT button

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section [3].

- **Function when button is pressed alone (DSK MIX)**
  Press the button alone to select a DSK mix effect.
  The downstream key signal is mixed in gradually, according to the transition duration set using the buttons in the keypad section [3]. During the transition, this button lights in amber; when the transition is complete, it lights in red to indicate that the downstream key signal is inserted.
  To remove the signal, press the button again, making it light in amber. The signal is mixed out gradually, according to the transition duration. When the transition is complete, the button goes out.
- **Function when button is pressed with SHIFT button (DSK CUT)**
  Press the button together with the SHIFT button in the keypad section [3] to select a DSK cut effect.
  The downstream key signal is cut in instantly, and the button lights in red. To remove the signal, press the button again. The signal is cut out instantly, and the button goes out.

## 8 EFFECTS CONTROL section

This section consists of buttons and controls used to set effect parameters.




EFFECTS CONTROL section

### ❶ Modifiable effect indicators

The MODIFY indicator lights when a user-modifiable effect is selected. Indicators F1 through F4 correspond to the four parameter adjustment knobs ❺. The indicators light only if the knobs can be used to modify the effect. If you rotate a knob whose indicator is not lit, a warning tone sounds.

### ❷ Chroma key/Color corrector adjustment buttons and indicators

Use these buttons to select chroma key or color correction adjustment mode.

**CRK (chroma key) button:** Pressing this button, turning it on, while the CHROMA KEY button in the TITLE section [5] is lit puts the unit into chroma key adjustment mode. The CLIP and HUE indicators light, and you can adjust the chroma key clipping level and hue by rotating the corresponding parameter adjustment knobs ❺. When finished, press the CRK button again to extinguish it and leave chroma key adjustment mode.

**COL CRRCT (color corrector) button:** Press this button, turning it on, to adjust the color correction applied to input video.
The HUE, OFFSET, and C GAIN indicators light. Adjust the hue, offset, and chroma gain of video input to the primary inputs by rotating the corresponding parameter adjustment knobs ❺. When finished, press the COL CRRCT button again to extinguish it and leave color corrector adjustment mode.

**Notes**

- Chroma key and color correction parameters cannot be adjusted simultaneously.
- If you press one of the color adjustment buttons while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter color adjustment mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.
- If you press the CRK button while the CHROMA KEY button in the TITLE section [5] is off, a warning tone sounds, and the unit does not enter chroma key adjustment mode. Similarly, if you press the COL CRRCT button while the COLOR CORRECTION button in the primary crosspoint but section [1] is off, a warning tone sounds, and the COL CRRCT button does not work.

### ❸ User program effect indicators

These indicators light while you are creating or editing a user program effect.

If you specify a linear effect, the ROT(X), ROT(Y), ROT(Z), and PERS indicators light, and you can adjust the parameters of the effect by rotating the corresponding parameter adjustment knobs ❺. Note, however, that the PERS (perspective) indicator does not light unless you have installed the BKDF-301/301P 3D Effect Option board.

If you specify a nonlinear effect, the OFFSET, FORM, ROT(Z), and ANGLE indicators light, and you can adjust the parameters by rotating the corresponding parameter adjustment knobs ❺.

**Note**

You need to install the optional BKDF-301/301P board to use nonlinear user program effects.

### ❹ Mask adjustment buttons and indicators

**TITLE MASK button:** Press to select title mask adjustment mode. The button lights, and the LEFT, RIGHT, TOP, and BOTTOM indicators light. Adjust the mask area by rotating the corresponding parameter adjustment knobs ❺. When finished, press the TITLE MASK button again to extinguish it and leave title mask adjustment mode.

**DSK MASK button:** Press to select DSK mask adjustment mode. The button lights, and the LEFT, RIGHT, TOP, and BOTTOM indicators light. Adjust the mask area by rotating the corresponding parameter adjustment knobs ❺. When finished, press the DSK MASK button again to extinguish it and leave DSK mask adjustment mode.

**Notes**

- If you press one of the mask adjustment buttons while the unit is in user program edit mode (the USER PGM indicator is lit), a warning tone sounds, and the unit does not enter mask adjustment mode. To leave user program edit mode, press the EDIT button in the USER PROGRAM section [11] to extinguish it.
- Title mask and DSK mask parameters cannot be adjusted simultaneously.

### ❺ Parameter adjustment knobs

These knobs have the following six functions.

- For linear user program effects, the knobs set parameters for X-axis rotation (ROT(X)), Y-axis rotation (ROT(Y)), Z-axis rotation (ROT(Z)), and perspective (PERS).
- For nonlinear user program effects, the knobs set parameters for the degree of modification (OFFSET), the type of modification (FORM), Z-axis rotation (ROT(Z)), and the effect angle (ANGLE).
- In chroma key adjustment mode, the knobs set parameters for clipping level (CLIP) and hue (HUE).
- In color corrector adjustment mode, the knobs set parameters for hue (HUE), offset value (OFFSET) and chroma gain (C GAIN).
- For user-modifiable effects, the knobs set parameters corresponding to indicators F1 through F4. The parameters depend on the selected effect, and some knobs are not used for some effects. If you rotate a knob that is not used, a warning tone sounds.

  *For more information about the parameters, see "Effect Control Parameters" (page A-7).*

- In the mask adjustment modes, the knobs adjust the title or downstream key mask areas. Rotate the knobs to adjust, from left, the LEFT, RIGHT, TOP, or BOTTOM borders of the mask areas.

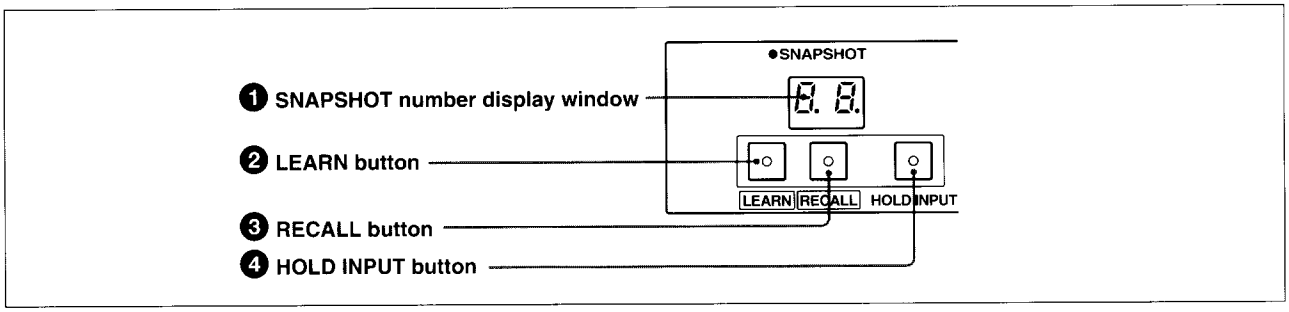
## 9 EDITOR/GPI ENABLE button

This button has two functions. Select them by pressing the button alone, or by pressing it together with the SHIFT button in the keypad section 3.

- **Function when button is pressed alone (EDITOR)**
  Press the button alone to enable control from an editing control unit. The button lights, and you can control the DFS-300/300P from an editing control unit connected to the EDITOR connector on the rear panel of the processor unit. Press the button again to extinguish it and disable control from the editing control unit.
- **Function when button is pressed with SHIFT button (GPI)**
  Press the button together with the SHIFT button in the keypad section to enable control by GPI signals. The buttons light, and you can control the DFS-300/300P from a device connected to the T1/CUE or T2 connector on the rear panel of the processor unit. Press the buttons again to extinguish the EITOR/GPI ENABLE button and disable GPI control.
  You can check whether control by GPI signals is enabled by pressing the SHIFT button alone. If control is enabled, the EDITOR/GPI button lights. If control is not enabled, the EDITOR / GPI button does not light.

## 10 SNAPSHOT section

This section consists of buttons used to register and recall snapshots of the control panel. You can save up to 100 snapshots, numbered from 0 through 99.




SNAPSHOT section

### ❶ SNAPSHOT number display window

Shows the snapshot number (0 to 99). The dots next to the digits light while you are entering the number.

### ❷ LEARN button

Press this button, turning it on, to register a snapshot.
Use the buttons in the keypad section 3 to enter any number from 0 to 99, and press the ENTER button. The current settings of the control panel are saved under that number in snapshot memory, the LEARN button goes out, and the unit leaves snapshot learn mode.

### ❸ RECALL button

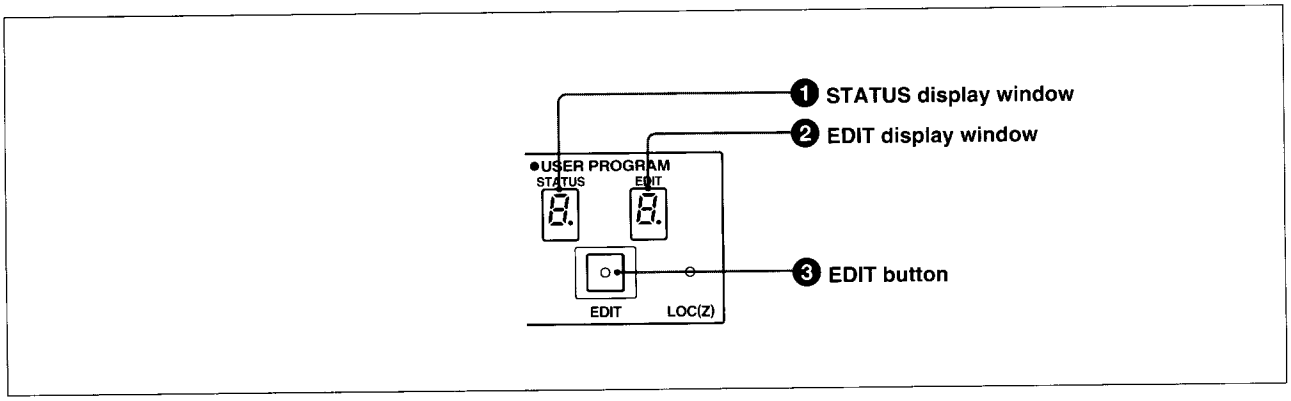
Press this button, turning it on, to recall a snapshot. Use the buttons in the keypad section 3 to enter any number from 0 to 99, and press the ENTER button. The control panel is set to the settings saved in the specified snapshot, the RECALL button goes out, and the unit leaves snapshot recall mode.

### ❹ HOLD INPUT button

Press this button, turning it on, if you do not want to overwrite the settings of the primary crosspoint bus section 1 (selected video input) when you recall a snapshot. When you recall the snapshot, all settings are recalled to control panel except those of the primary crosspoint bus section.
Press the HOLD INPUT button again to extinguish it and enable recall of primary crosspoint bus section settings.

## 11 USER PROGRAM section

Use this section to create and edit user program effects. To edit the effects, the keypad section 3 and EFFECTS CONTROL section 8 are also used.




USER PROGRAM section

### 1 STATUS display window

When you select a user program effect, displays the number of key frames (maximum 8) that make up the effect.

### 2 EDIT display window

In user program edit mode, displays the number of the key frame currently being edited.

### 3 EDIT button

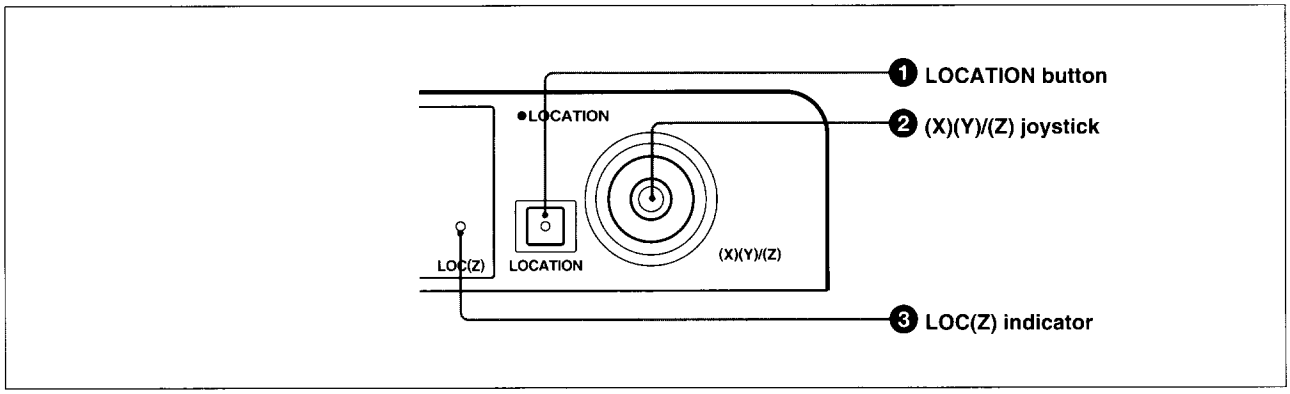
Press to select user program edit mode. The EDIT button and the USER PGM indicator in the keypad section 3 light.
Press the button again to leave user program edit mode.

**Note**

If you press the EDIT button after selecting an effect other than a user program effect, a warning tone sounds, and the unit does not enter user program edit mode.

## 12 LOCATION section

Use this section to move the position of an effect pattern.




LOCATION section

### ❶ LOCATION button

Press this button, turning it on, to enable the (X)(Y)/(Z) joystick ❷.
Press it again to extinguish the button, disable the joystick, and reset the effect position.

**Note**

If you press the LOCATION button or move the joystick after selecting an effect pattern whose position cannot be moved, a warning tone sounds.

*For more information about which patterns can be moved, see "Effect Parameters" (page A-4).*

### ❷ (X)(Y)/(Z) joystick

- **To adjust the X-axis and Y-axis**
  Move the joystick laterally (X-axis) or vertically (Y-axis).
- **To adjust the Z-axis**
  With the LOC(Z) indicator ❸ lit, move the joystick vertically while pressing the SHIFT button in the keypad section [3]. This changes the effect pattern position in the direction of depth of screen (Z-axis), or the apparent size of the pattern.

### ❸ LOC(Z) indicator

Lights when you select a pattern which can be moved along the Z-axis.

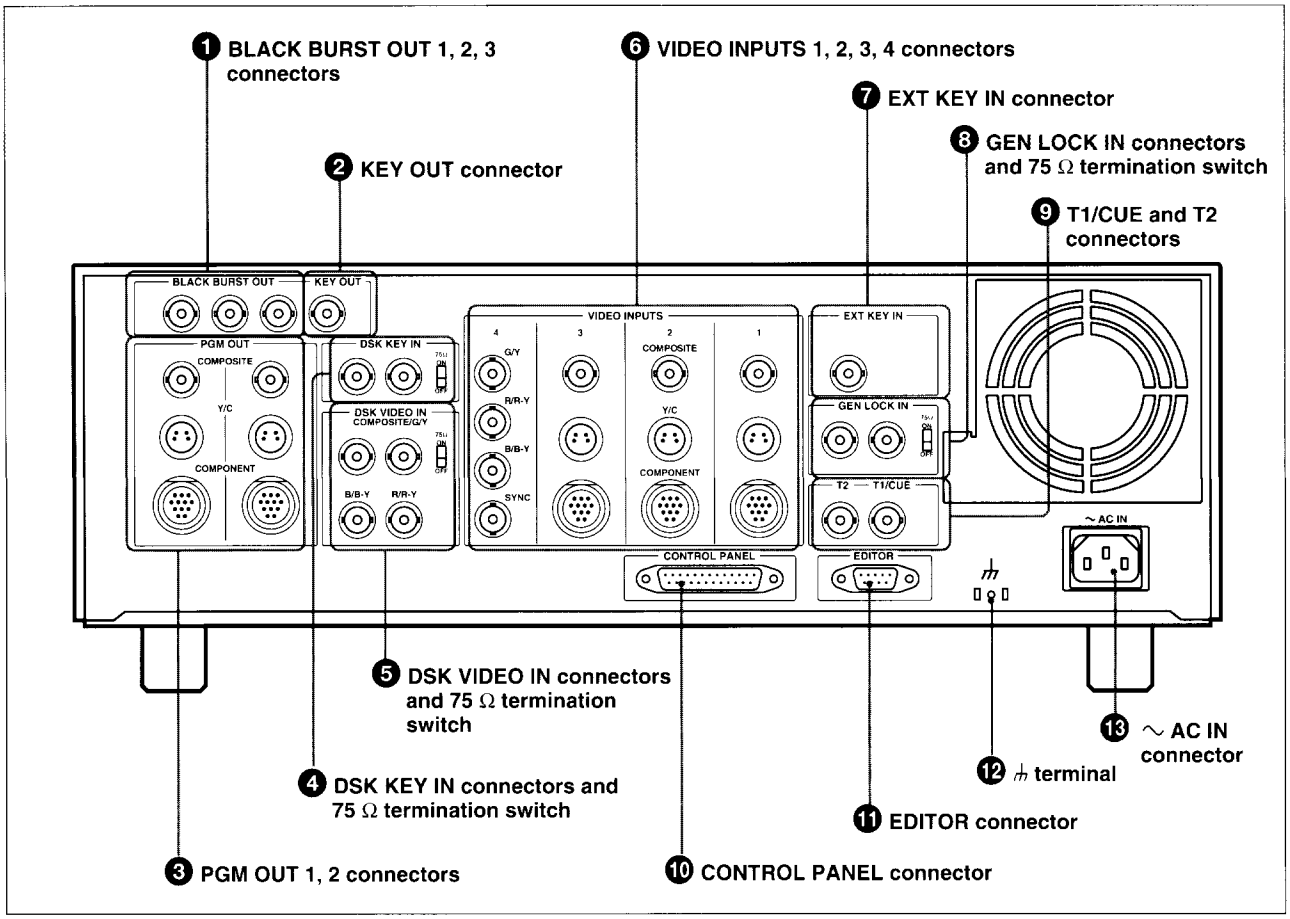
## 13 25-pin connector (rear panel)

Connect to the CONTROL PANEL connector on the processor unit using the supplied 25-pin remote control cable.

# Processor Unit

This section illustrates and describes the connectors and switches of the processor unit.

## Rear Panel




Rear panel

### ❶ BLACK BURST OUT (output) 1, 2, 3 connectors (BNC-type)

These connectors normally output a black burst signal generated by the unit's built-in sync signal generator. When an external sync signal is input to the GEN LOCK IN connectors ❽, a black burst signal synchronized with the external sync signal is output. If you have installed the optional BKDF-504/504P DSK Board, use the output from these connectors as a reference sync signal for character generators and other DSK signal sources.
To improve editing accuracy, supply the black burst signal from these connectors to the VCRs and editing control unit in your editing system.

### ❷ KEY OUT connector (BNC-type)

Connect to the external key input connector of a switcher. During execution of an effect, a signal corresponding to the effect outline is output as the key source signal. In title mode, the key source signal is output.

### ❸ PGM OUT (program output) 1, 2 connectors

Output the final program picture created with the DFS-300/300P. Connect to the video input connectors on a recorder VCR or program monitor.

**COMPOSITE (BNC-type):** Output a composite video signal.

**Y/C (4-pin):** Output an S-video signal with separate Y (luminance) and C (chrominance) components.

**COMPONENT (12-pin):** Output a Betacam-format component video signal.

Signals in all three of the above formats can be output simultaneously. Connectors 1 and 2 output the same signals.

### ❹ DSK KEY IN (downstream key input) connectors (BNC-type) and 75 Ω termination switch

Connect one of these connectors to the external key output connector on a character generator or other signal source, and input a key source signal for a downstream key. The signal input to one of these connectors is used as the key source signal when the EXT KEY button in the DOWN-STREAM KEYER section of the control panel is lit. If the EXT KEY button is not lit, the signal input to the DSK VIDEO IN connector ❺ is used as the key source signal.

When using one of these connectors as a loop-through output connector to supply a key source signal to other video equipment, set the 75 Ω termination switch to OFF. Otherwise, set the 75 Ω termination switch to ON.

### ❺ DSK VIDEO IN (downstream video input) connectors and 75 Ω termination switch

Input a fill signal for a downstream key, to fill the hole cut with the key source signal. Input a composite signal or a component video signal (Betacam-format luminance and color-difference signals, or RGB signals).

**COMPOSITE/G/Y (BNC-type):** Input a composite signal, the G signal, or the Y (luminance) signal.

**B/B–Y (BNC-type):** Input the B signal or the B–Y (color-difference) signal.

**R/R–Y (BNC-type):** Input the R signal or the R–Y (color-difference) signal.

Select the signal format with the DSK VIDEO SELECT switch on the DA-79 board *(see page 2-23)*.

When a composite video signal is input to one of these connectors, the other connector can be used as a loop-through output connector to supply a key fill signal to other video equipment. When using a loop-through connection, set the 75 Ω termination switch to OFF. Otherwise, set the 75 Ω termination switch to ON.

When the key source signal input to the DSK KEY IN connector ❹ is not used, the luminance signal of the signal input to one of these connectors is used as the key source signal.

### ❻ VIDEO INPUTS 1, 2, 3, 4 connectors

Input video signals from video cameras or player VCRs.

- **VIDEO INPUTS 1, 2, 3**

  **COMPOSITE (BNC-type):** Input a composite video signal.

  **Y/C (4-pin):** Input an S-video (Y/C separate) signal.

  **COMPONENT (12-pin):** Input a Betacam-format component video signal.

Select the signal format by setting the IN 1, 2, 3 switches on the AD-104 board *(see page 2-21)*.

You can input signals of different formats to the 1, 2, and 3 connectors.

- **VIDEO INPUTS 4**

  Input a component video signal (Betacam-format luminance and color-difference signals), or an RGB signal.

  **G/Y (BNC-type):** Input the G or Y (luminance) signal.

  **R/R–Y (BNC-type):** Input the R or R–Y (color-difference) signal.

  **B/B–Y (BNC-type):** Input the B or B–Y (color-difference) signal.

  **SYNC (BNC-type):** Input a sync signal (RGBS mode only).

Select the signal format by setting the IN 4 switch on the AD-104 board *(see page 2-21)*.

### ❼ EXT KEY IN (external key input) connector (BNC-type)

Input a key source signal for title key. Connect to the external key output connector on a character generator or other external key source. The signal input to this connector is used as the key source signal when the EXT KEY button in the TITLE section of the control panel is lit. When the EXT KEY button is not lit, a signal input to the VIDEO INPUTS connectors ❻ is used.

### ❽ GEN LOCK IN connectors (BNC-type) and 75 Ω termination switch

Input a black burst signal to one of these connectors to synchronize this unit to an external reference signal.

You can use one of the connectors as a loop-through output connector to supply the reference sync signal to other equipment. When using a loop-through connection, set the 75 Ω termination switch to OFF. Otherwise, set the termination switch to ON.

### ⑨ T1/CUE (trigger 1/cue) and T2 (trigger 2) connectors (BNC-type)

Input a trigger signal to start an effect when executing an automatic edit from an editing control unit such as the RM-450 or BVE-600. Connect to the cue connector or trigger output connector of the editing control unit.

To start an effect using a GPI signal, input the GPI signal to the T1/CUE connector. You can also turn on and off a downstream key by connecting another GPI signal to the T2 connector.

### ⑩ CONTROL PANEL connector (25-pin)

Connect to the 25-pin connector of the control panel unit using the supplied 25-pin remote control cable.

### ⑪ EDITOR connector (9-pin)

To control the DFS-300/300P from the PVE-500 or a BVE-2000 series editing control unit, connect to the editing control unit's 9-pin control connector using a 9-pin remote control cable.

### ⑫ ⏚ (ground) terminal

Connect to ground as necessary.

### ⑬ ~AC IN (AC power input) connector

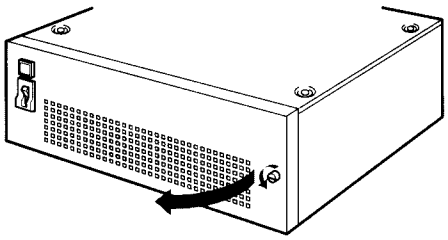
Connect to an AC power outlet using the supplied AC power cord.



# Front Panel and Internal Boards

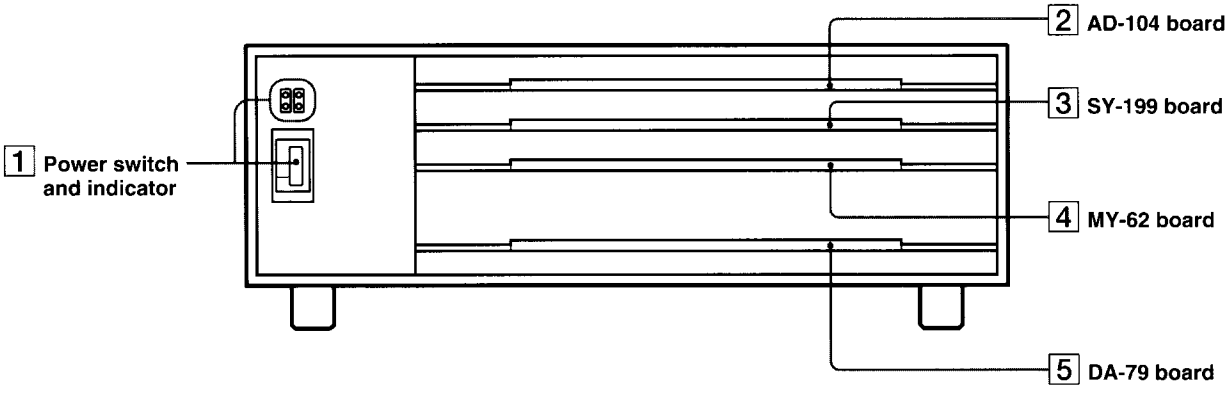
**Opening the front panel**

To open the front panel, unlock the screw using a screwdriver.



**Note**

Be sure to turn off the power switch before opening the front panel.

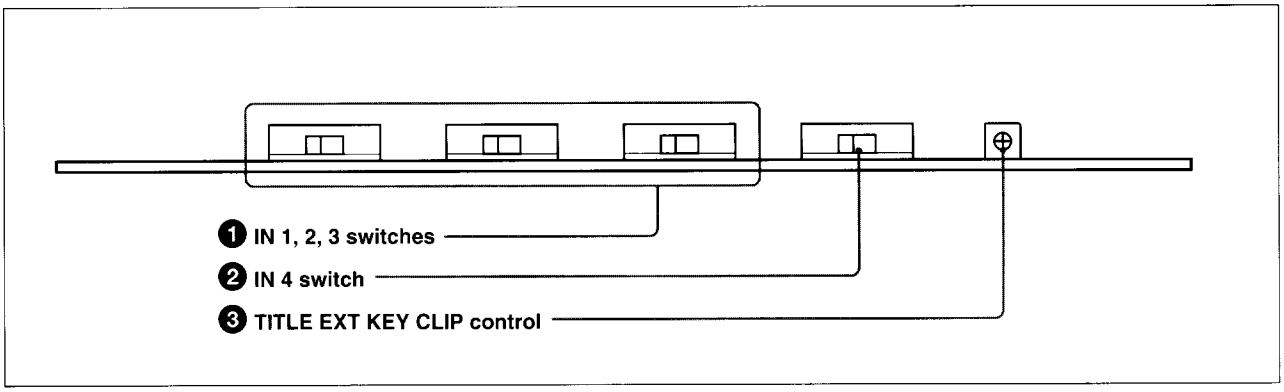



Front panel and internal boards

## 1 Power switch and indicator

Turn the switch to the "I" side to turn the power on, and to the "O" side to turn the power off. When the power is on, the indicator lights.

## 2 AD-104 (A/D converter) board




AD-104 board

### ❶ IN (input signal format select) 1, 2, 3 switches

Set these switches according to the format of the signals input to the VIDEO INPUTS 1, 2, 3 connectors on the rear panel.

**COMPOSITE (left):** Composite video signal

**Y/C (center):** S-video signal

**COMPONENT (right):** Betacam-format component video signal

All three switches are factory preset to COMPOSITE.

### ❷ IN (input signal format select) 4 switch

Set this switch according to the format of the signal input to the VIDEO INPUTS 4 connector on the rear panel.

**Y/R–Y/B–Y (left):** Betacam-format component signal

**RGB (center):** RGB signal, G signal with SYNC

**RGBS (right):** RGB signal, G signal without SYNC

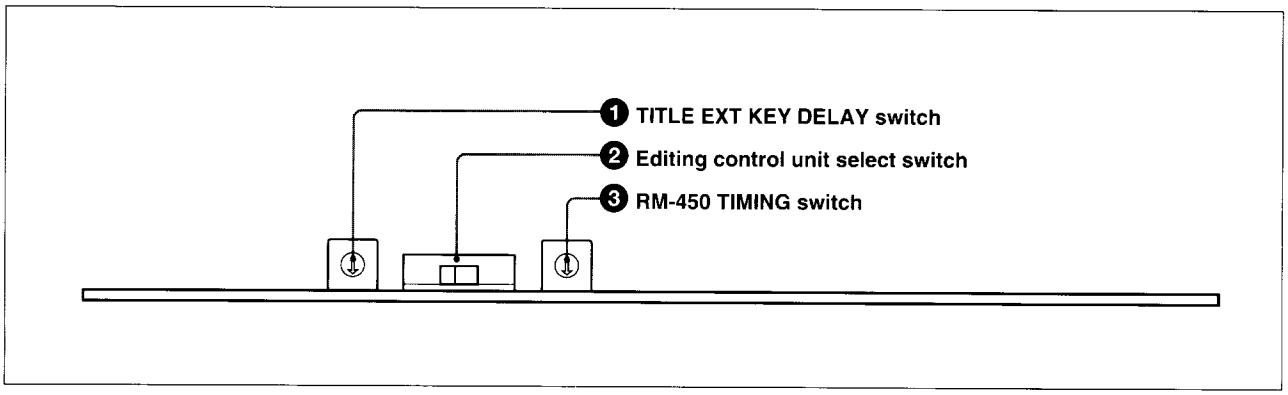
When you select RGBS format, you must input a SYNC signal to the VIDEO INPUTS 4 SYNC connector.

This switch is factory preset to Y/R–Y/B–Y.

### ❸ TITLE EXT KEY CLIP (external title key clipping level) control

Adjust the clipping level of the key source signal input to the EXT KEY IN connector on the rear panel.

## 3 SY-199 (system control) board




SY-199 board

### 1 TITLE EXT KEY DELAY (external title key delay) switch

Adjust the delay of the key source signal input to the EXT KEY IN connector on the rear panel. The delay is an offset with respect to the key fill signal. It is adjustable in 16 steps of about 70 ns per step.

### 2 Editing control unit select switch

Set to the connected editing control unit.

**RM-450:** RM-450 Editing Control Unit

**BVE-600:** BVE-600 Editing Control Unit

**PVE-500:** PVE-500 or BVE-900/910/2000 Series editing control unit. Set the switch to this setting when using the DFS-300/300P as a stand-alone unit without connecting an editor, or when controlling it with GPI signals.

This switch is factory preset to PVE-500.

**Note**

This switch cannot be set with the unit powered on. Before changing the setting, turn the power switch on the processor unit off.

### 3 RM-450 TIMING (freeze timing) switch

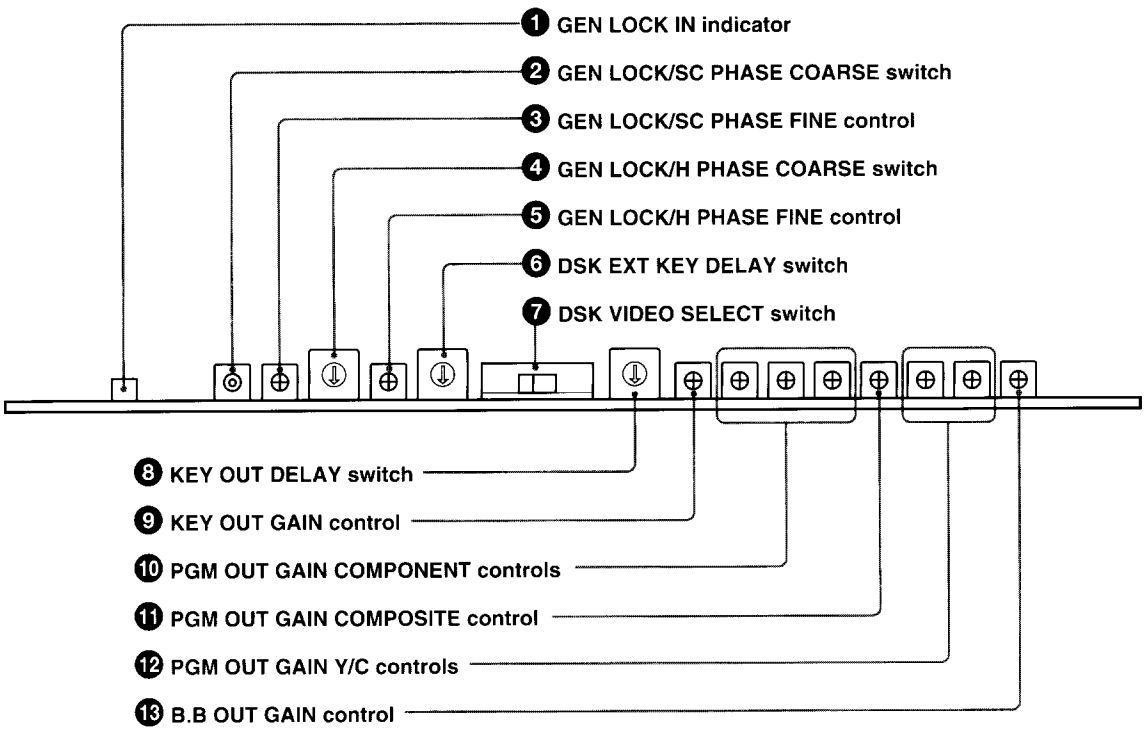
When using an RM-450 Editing Control Unit, set the FREEZE IN point timing. This setting is an offset in units of fields with respect to the edit IN point. It determines the point at which the background picture freezes.

Turn the switch in the + direction (9,A,..F) to delay the timing, and turn it in the – direction (7,6,..0) to advance the timing. The timing can be adjusted in steps of one field within a range of –8 to +7 fields. This switch is factory preset to 8.

## 4 MY-62 board

Do not change the settings of any switches on this board.

## 5 DA-79 (D/A converter) board


❶ GEN LOCK IN indicator
❷ GEN LOCK/SC PHASE COARSE switch
❸ GEN LOCK/SC PHASE FINE control
❹ GEN LOCK/H PHASE COARSE switch
❺ GEN LOCK/H PHASE FINE control
❻ DSK EXT KEY DELAY switch
❼ DSK VIDEO SELECT switch
❽ KEY OUT DELAY switch
❾ KEY OUT GAIN control
❿ PGM OUT GAIN COMPONENT controls
⓫ PGM OUT GAIN COMPOSITE control
⓬ PGM OUT GAIN Y/C controls
⓭ B.B OUT GAIN control

Switches ❻ and ❼ are disabled unless you have installed the optional BKDF-504/504P DSK Board.

DA-79 board

### ❶ GEN LOCK IN (external sync signal input) indicator

Lights when an external sync signal (black burst signal) is input to the GEN LOCK IN connector on the rear panel.

**Lit (orange):** External sync signal input. The built-in sync signal generator is automatically synchronized with the external sync signal (gen-lock mode).

**Not lit:** No external sync signal input. The built-in sync signal generator generates the sync signal independently (internal sync mode).

### ❷ GEN LOCK/SC PHASE COARSE (sync signal subcarrier phase coarse adjustment) switch

Roughly adjusts the subcarrier phase of the signal generated by the built-in sync signal generator. Use this switch to synchronize the phase with the subcarrier phase of a reference signal input to the GEN LOCK IN connector on the rear panel. Changing the setting reverses the subcarrier phase by about 180°.

Set the switch to the opposite position if you are not able to synchronize the subcarrier phases by rotating the GEN LOCK/SC PHASE FINE control ❸.

### ❸ GEN LOCK/SC PHASE FINE (sync signal subcarrier phase fine adjustment) control

Precisely adjusts the subcarrier phase of the signal generated by the built-in sync signal generator. Use this control to synchronize the phase with the subcarrier phase of a reference signal input to the GEN LOCK IN connector on the rear panel.

### ❹ GEN LOCK/H PHASE COARSE (sync signal horizontal phase coarse adjustment) switch

Roughly adjusts the horizontal phase of the signal generated by the built-in sync signal generator. Use this switch to synchronize the phase with the horizontal phase of a reference signal input to the GEN LOCK IN connector on the rear panel. The phase is adjustable in 16 steps of about 280 ns per step.

### ❺ GEN LOCK/H PHASE FINE (sync signal horizontal phase fine adjustment) control

Precisely adjusts the horizontal phase of the signal generated by the built-in sync signal generator, after coarse adjustment with the GEN LOCK/H PHASE COARSE switch ❹.

### ❻ DSK EXT KEY DELAY (external downstream key signal delay) switch

Adjusts the delay of the signal input to the DSK KEY IN connectors on the rear panel (DSK external key source signal) with respect to the signal input to the DSK VIDEO IN connectors (DSK key fill signal). The delay is adjustable in 16 steps of about 70 ns per step.

### ❼ DSK VIDEO SELECT (downstream key fill signal format select) switch

Selects the format of the DSK key fill signal input to the DSK VIDEO IN connector on the rear panel.

**COMPOSITE:** Composite video signal

**Y/R–Y/B–Y:** Betacam-format component signal with luminance (Y) and color difference (R–Y, B–Y) components.

**R/G/B:** RGB signal

This switch is factory preset to R/G/B.

### ❽ KEY OUT DELAY (output key signal delay) switch

Adjusts the delay of the signal output from the KEY OUT connector with respect to the signal output from the PGM OUT connectors.
The delay is adjustable in 16 steps of about 70 ns per step.

### ❾ KEY OUT GAIN (output key signal gain) control

Adjusts the level of the signal output from the KEY OUT connector.
The adjustment range is about ±3 dB.

### ❿ PGM OUT GAIN COMPONENT (program output component signal level) controls

Adjusts the level of the component video signal (Y/R–Y/B–Y) output from the 12-pin PGM OUT connectors.
The adjustment range is about ±3 dB.
The leftmost control adjusts the Y signal, the center control adjusts the R–Y signal, and the rightmost control adjusts the B–Y signal.

### ⓫ PGM OUT GAIN COMPOSITE (program output composite signal level) control

Adjusts the level of the composite video signal output from the BNC-type PGM OUT connectors.
The adjustment range is about ±3 dB.

### ⓬ PGM OUT GAIN Y/C (program output Y/C signal level) controls

Adjusts the level of the Y/C video signal output from the 4-pin PGM OUT connectors. The left control adjusts the Y signal, and the right control adjusts the C signal. The adjustment range is about ±3 dB.

### ⓭ B.B OUT GAIN (black burst signal output gain) control

Adjusts the level of the signal output from the BLACK BURST OUT 1, 2, 3 connectors on the rear panel.
The adjustment range is about ±3 dB.

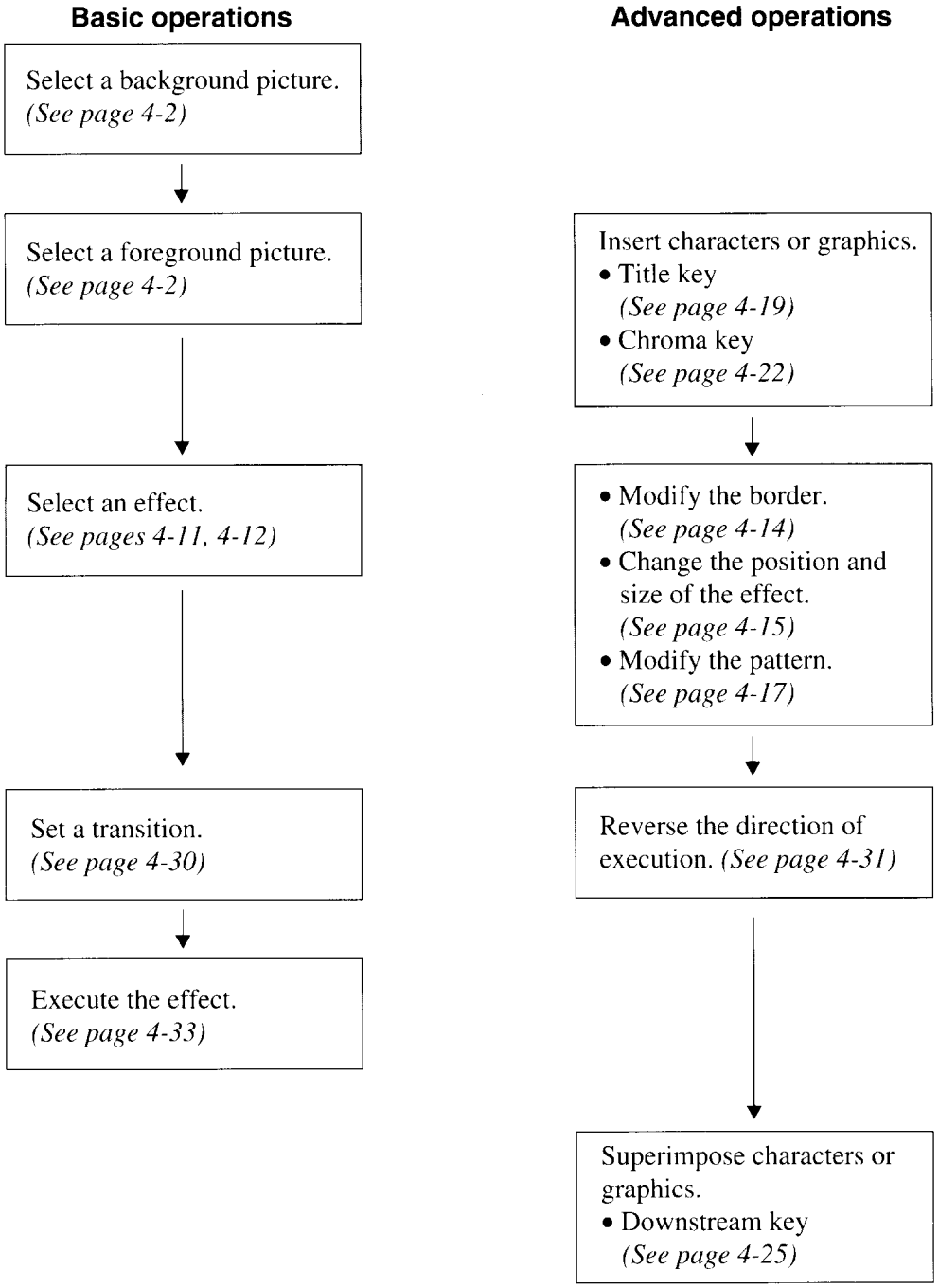
# Chapter 3
# Tutorial

This chapter selects two of the special effects built into the DFS-300/300P, and presents a tutorial that lets you try out the control panel as you execute the basic sequence of operations. It also discusses the unit's demonstration mode.

**Sequence of Operations** ..... **3-2**
**Executing Special Effects** ..... **3-3**
Executing a Wipe Effect ..... 3-3
Executing a Picture-in-Picture Effect ..... 3-6
**Viewing the Special Effects Demonstration.** ..... **3-9**

# Sequence of Operations

The flow chart below shows the sequence of operations in a typical editing session using the DFS-300/300P. The left side shows basic operations, and the right side shows advanced operations, which you can execute as required.
For more information about the operations, see the pages indicated in parentheses.


Basic operations
Advanced operations
Select a background picture. (See page 4-2)
Select a foreground picture. (See page 4-2)
Select an effect. (See pages 4-11, 4-12)
Set a transition. (See page 4-30)
Execute the effect. (See page 4-33)
Insert characters or graphics.
• Title key (See page 4-19)
• Chroma key (See page 4-22)
• Modify the border. (See page 4-14)
• Change the position and size of the effect. (See page 4-15)
• Modify the pattern. (See page 4-17)
Reverse the direction of execution. (See page 4-31)
Superimpose characters or graphics.
• Downstream key (See page 4-25)

**Note**

This chapter assumes that the editing control unit select switch in the processor unit is set to the PVE-500 position. If you set the switch to another position, some operations may need to be performed differently.

# Executing Special Effects

This section introduces the basic procedures used to operate the DFS-300/300P, using as examples the wipe and picture-in-picture effects.

## Executing a Wipe Effect

Using the AUTO TRANS button, we will replace the picture on the program monitor screen with another picture by executing a wipe from the upper left corner of the screen to the lower right corner.

### Parameters

We will set the following four parameters at the control panel:

**Background picture:** The picture on the screen before the transition. In the example, it is the signal input to the VIDEO INPUTS 1 connector.

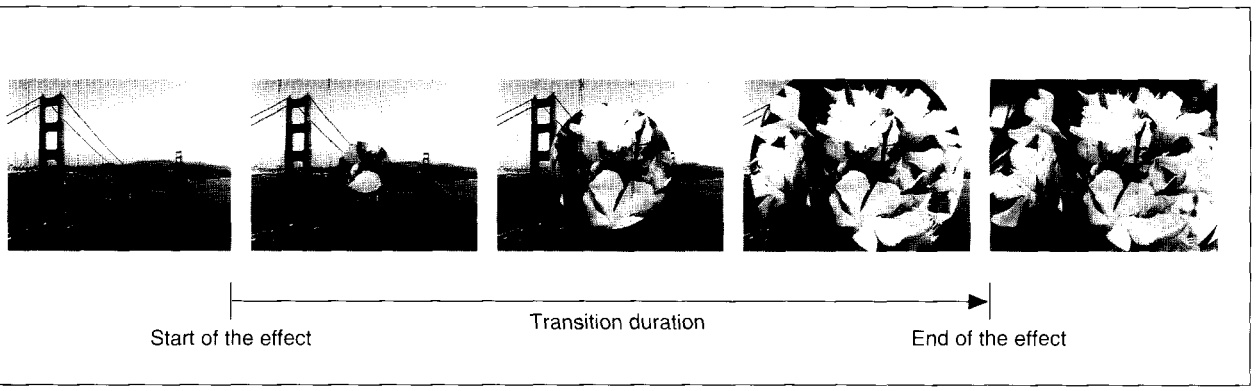
**Foreground picture:** The picture on the screen after the transition. In the example, it is the signal input to the VIDEO INPUTS 2 connector.

**Effect:** The way in which the background picture changes into the foreground picture. In the example, it is a wipe using pattern number 24.

**Transition duration:** Time it takes for the background picture to change into the foreground picture. In the example, it is 30 frames.

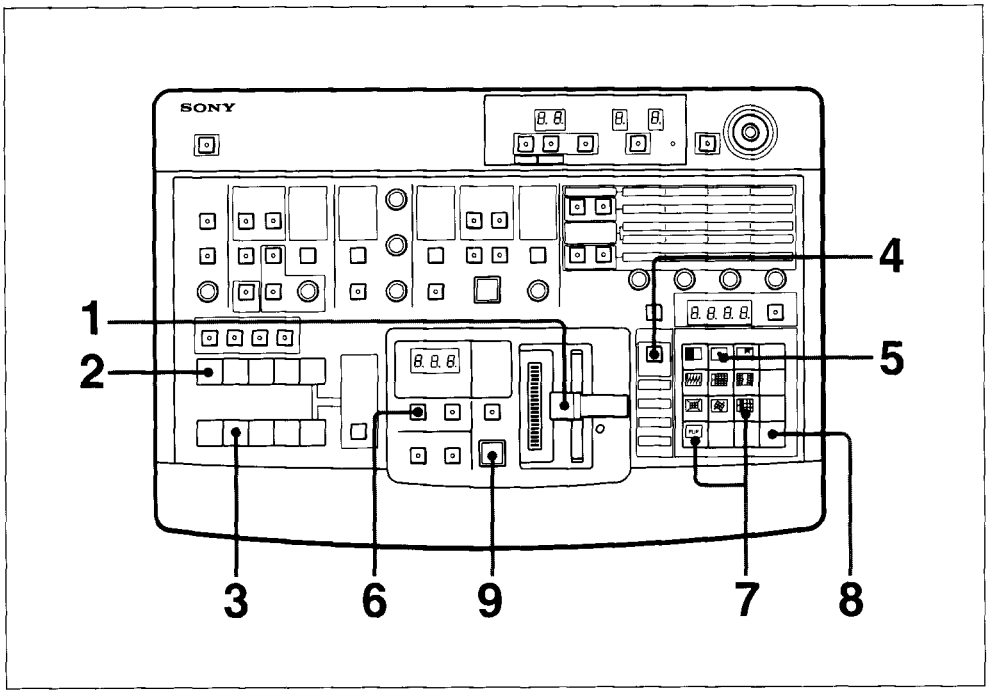
### Program picture

When we execute the wipe, the picture on the program monitor screen changes as follows:




Wipe

## Operation




Basic operation 1 — Wipe

Preparation

**1** Pull the fader lever all the way down.

Picture selection

**2** Press the BACKGROUND bus button [1].

The button lights in red, and the video signal input to the VIDEO INPUTS 1 connector is selected as the background picture.
The selected picture appears on the screen of the program monitor.

**3** Press the FOREGROUND bus button [2].

The button lights in amber, and the video signal input to the VIDEO INPUTS 2 connector is selected as the foreground picture.
To check the picture on the screen of the program monitor, push the fader lever all the way up. After checking the picture, be sure to return the lever to the lowermost position.

Effect selection

**4** Press the DIRECT PATTERN button, turning it on.
If the button is already lit, skip this step.

You can now select any of the 13 effect patterns assigned to the PATTERN/KEY PAD buttons by pressing the corresponding button (direct pattern select mode).

**5** Press the PATTERN/KEY PAD button [8].

The button lights, and the wipe effect (pattern number 24) assigned to the button is selected. The PATTERN NUMBER display window shows "24".

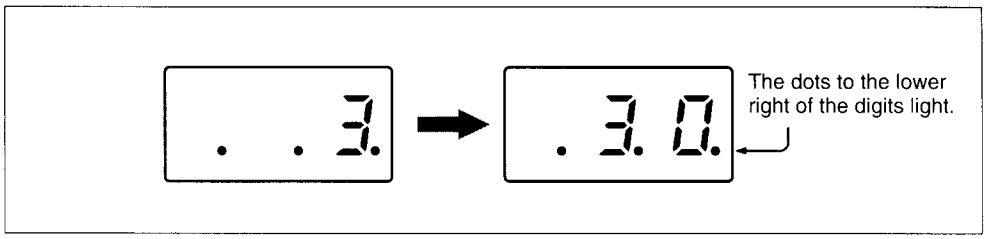
Transition duration data entry

**6** Press the EFFECT button.

The button lights, and the EFFECT indicator below the TRANS RATE display window lights.

**7** Press the PATTERN/KEY PAD button [3], then [0].

The TRANS RATE display window shows ".3.0.".




**8** Press the ENTER button.

The dots to the lower right of the digits go out, and the value entered in step **7** is accepted as the transition duration.

Effect execution

**9** Press the AUTO TRANS button.

The wipe is executed, and the foreground picture replaces the background picture.
At the end of the 30-frame transition, the FOREGROUND bus button [1] lights in amber, and the BACKGROUND bus button [2] lights in red.

# Executing a Picture-in-Picture Effect

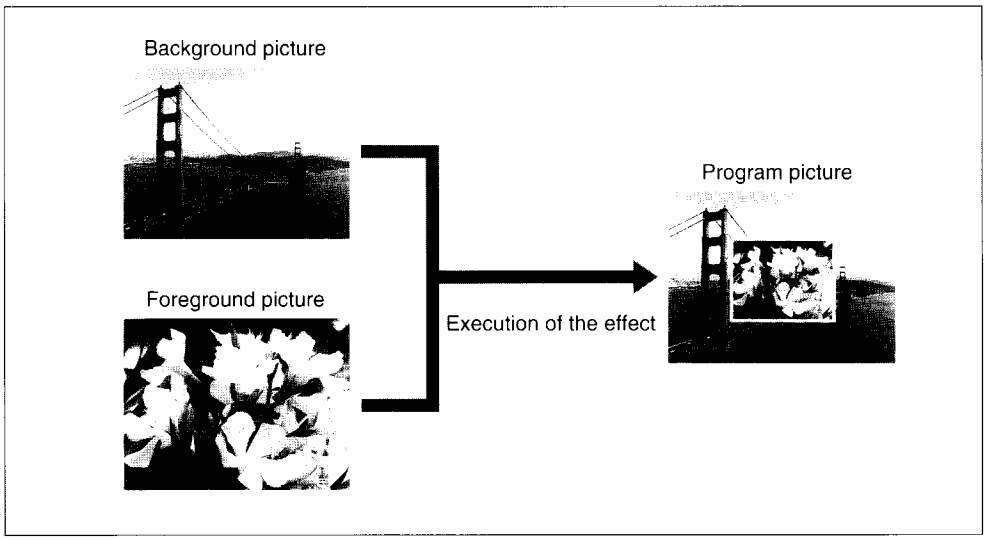
Using the fader lever, we will insert a foreground picture into the background picture.
We will also add a border around the foreground picture.

## Parameters

We will set the following four parameters at the control panel:
**Background picture:** An internally generated color background.
**Foreground picture:** The video signal input to the VIDEO INPUTS 1 connector.
**Effect:** The picture-in-picture effect (pattern number 1100).
**Border:** ON.

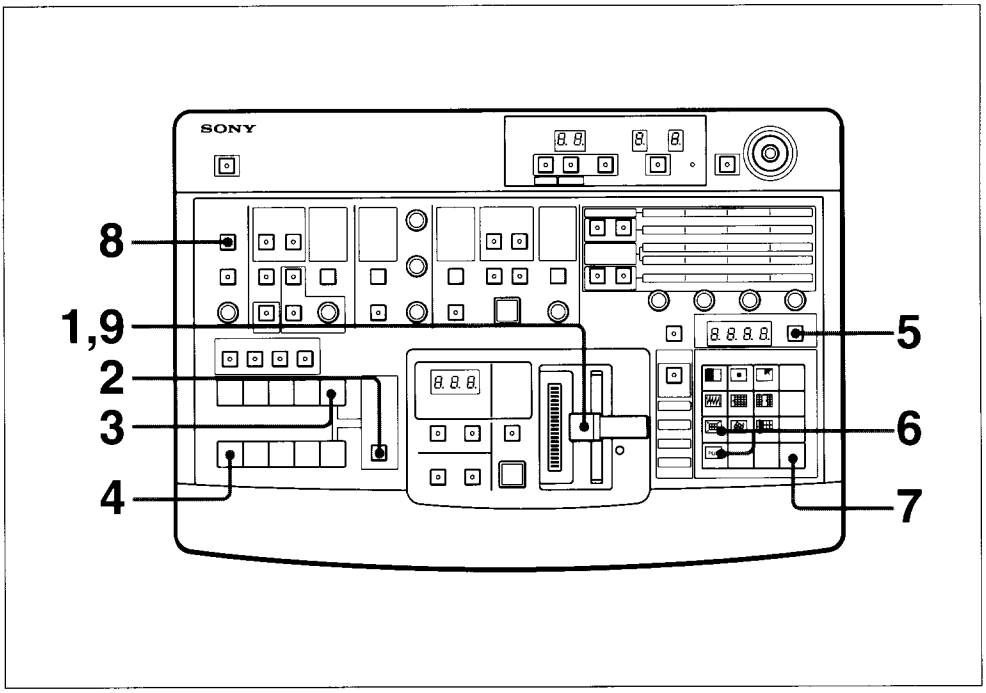
## Program picture

When we execute the effect, the picture on the program monitor screen changes as follows:




Picture-in-picture

## Operation




Basic operation 2 — Picture-in-picture

Preparation

**1** Pull the fader lever all the way down.

Picture selection

**2** Press the INT VIDEO SELECT button until the COL BKGD indicator lights.

The internally generated color background signal is selected.

**3** Press the INT VIDEO button in the BACKGROUND bus row.

The button lights in red, and the internally generated color background signal is selected as the background picture.
If you wish, you can change the color or emboss pattern of the background.

*For details, see "Adjusting Color Mattes" (page 4-36).*

**4** Press the FOREGROUND bus button [1].

The button lights in amber, and the video signal input to the VIDEO INPUTS 1 connector is selected as the foreground picture.

*(Continued)*

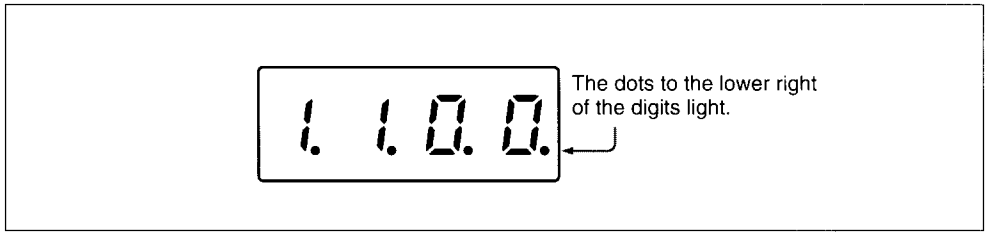
Effect selection

**5** Press the SET button, turning it on.
If the button is already lit, skip this step.

You can now use the buttons in the PATTERN/KEY PAD section to enter a pattern number (pattern number entry mode).

**6** Press the PATTERN/KEY PAD buttons [1], [1], [0], and [0] in that order.

The PATTERN NUMBER display window shows "1.1.0.0.".




**7** Press the ENTER button.

The dots to the lower right of the digits go out, and the value entered in step **6** is accepted as the pattern number.
The INT VIDEO button in the BACKGROUND bus row and the FOREGROUND bus button [1] both light in red.

Border selection

**8** Press the BORDER button.

The button lights, and borders are turned on.
If you wish, you can change the color and width of the border.

*For details, see "Modifying the Edge — Border and Soft Edge" (page 4-14).*

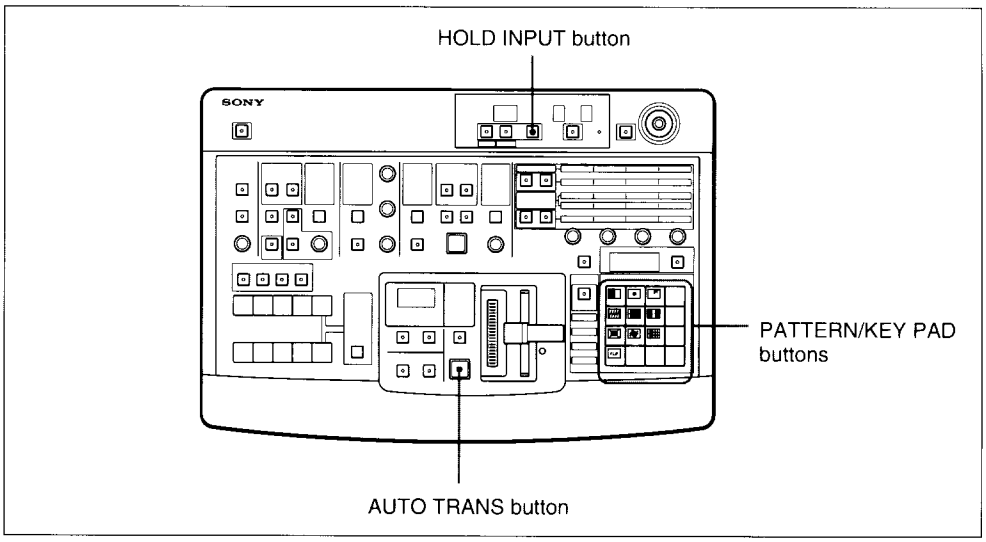
Effect execution

**9** Push the fader lever up to the opposite side.

The picture-in-picture effect is executed as you move the lever. The foreground picture appears over the background picture, surrounded by a border.

# Viewing the Special Effects Demonstration

The DFS-300/300P has a demonstration mode in which 100 effects stored in the unit's ROM (read only memory) are executed repeatedly. Use it to see which types of effects are available.
The demonstration uses 100 factory preset snapshots of the control panel.
To view the demonstration, connect VCRs or video cameras to the VIDEO INPUTS 1 and 2 connectors. If you have changed the setting of the editing control unit select switch *(page 2-22)* in the processor unit, power the unit off and set it to PVE-500 . If the HOLD INPUT button in the SNAPSHOT section is lit, press it to extinguish it.




Buttons used in demonstration mode

## To start the demonstration

Press the AUTO TRANS button while holding down the PATTERN/KEY PAD buttons [1] and [9]. The 100 effects stored in ROM are executed repeatedly until you press the AUTO TRANS button again. During the demonstration, the buttons in the PATTERN/KEY PAD section light in clockwise order, and all buttons are disabled except the AUTO TRANS button.

## To end the demonstration

Press the AUTO TRANS button.
The demonstration stops. The control panel is set to the settings in effect when the demonstration was interrupted.

# Chapter 4
# Basic Operations

This chapter explains how to prepare and execute special effects on the DFS-300/300P.
It explains how to select foreground and background pictures, how to select parameters for special effects, and how to superimpose characters and graphics.
Note that the examples in this chapter show the effects produced when the editing control unit select switch in the processor unit is in the PVE-500 position. If you set the switch to another position, the effects produced may be slightly different.

**Selecting Pictures** ..... **4-2**
**Selecting Effects** ..... **4-5**
Choosing a DFS-300/300P Effect ..... 4-5
Selecting Effects With Pattern Buttons ..... 4-11
Selecting Effects With Pattern Numbers ..... 4-12
**Modifying the Edge — Border and Soft Edge** ..... **4-14**
**Changing the Location and Size of a Pattern — Location (X), (Y), (Z)** ..... **4-15**
**Modifying a Pattern — User-Modifiable Effects** ..... **4-17**
**Superimposing Characters and Graphics 1 — Title Key** ..... **4-19**
Luminance Key ..... 4-19
Chroma Key ..... 4-22
Mask — Hiding Part of a Title ..... 4-24
**Superimposing Characters and Graphics 2 — Downstream Key** ..... **4-25**
**Setting a Transition** ..... **4-30**
Setting the Transition Duration ..... 4-30
Setting the Transition Direction ..... 4-31
**Executing the Effect** ..... **4-33**
**Adjusting Color Mattes** ..... **4-36**
**Adjusting the Color Balance — Color Corrector** ..... **4-38**

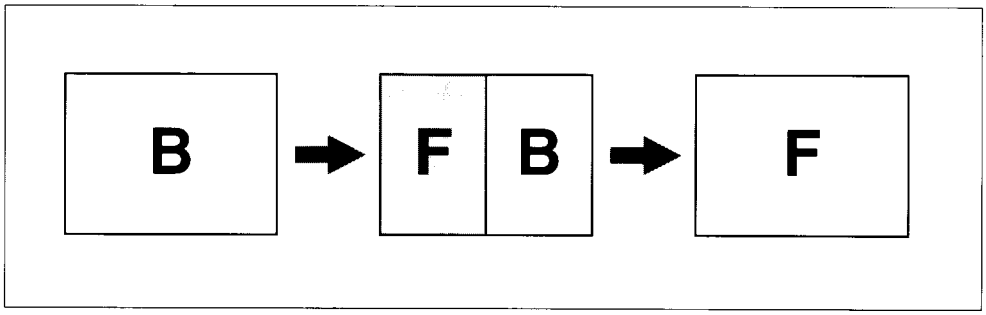
# Selecting Pictures

## What are foreground and background pictures?

### Foreground and background in transition effects

In transition effects, the background picture is the picture on the screen at the beginning of the effect. As the transition proceeds, the background picture is gradually replaced by the foreground picture, until only the foreground picture remains.
When discussing transition effects, background pictures are sometimes called "FROM pictures", and foreground pictures "TO pictures".

B: background picture, F: foreground picture

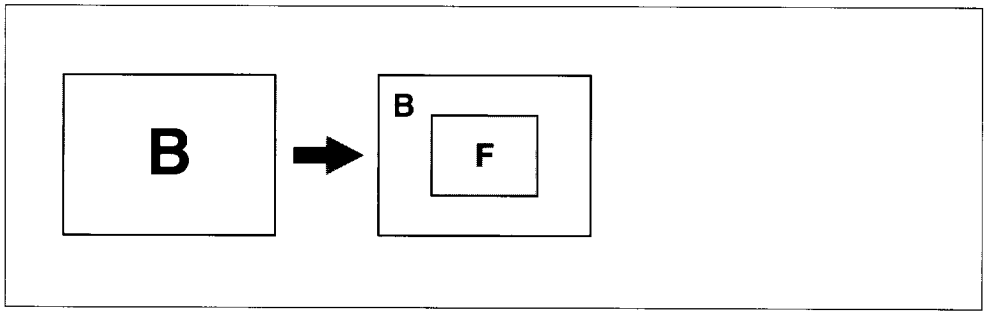



Transition effect — Wipe

### Foreground and background in animation effects

In animation effects, digital processing is applied to remove part of the background picture and replace it with the foreground picture. Some effects use motion, so that the foreground picture seems to move around against the background. Other effects simply insert the foreground picture into the background.
When an animation effect finishes, both the background and foreground pictures are visible on the screen.

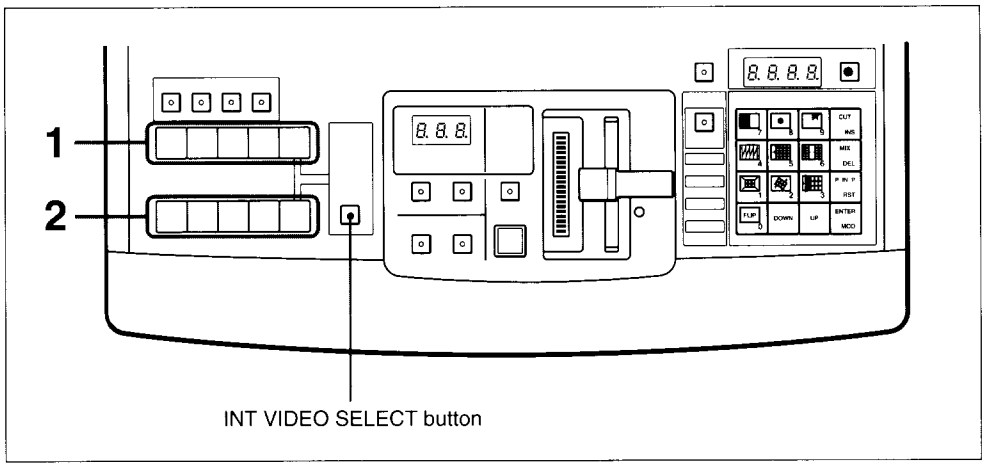
B: background picture, F: foreground picture




Animation effect — Picture-in-picture

## Selecting background and foreground pictures

Select background and foreground pictures by pressing the buttons in the primary crosspoint bus section.
The buttons numbered from 1 to 4 select video signals input to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel. The INT VIDEO buttons select signals generated by one of the unit's built-in signal generators.
To select background and foreground pictures, proceed as follows.




Selecting background and foreground pictures

**1** Press one of the BACKGROUND bus buttons to select the background picture.

The button lights.

**2** Press one of the FOREGROUND bus buttons to select the foreground picture.

The button lights.

### To identify the signals on the program monitor

Check the color of the lit BACKGROUND and FOREGROUND bus buttons. The buttons light as follows, depending on whether or not the signals they select are being output from the PGM OUT connectors on the rear panel.
**Red:** The signal is being output to the program monitor.
**Amber:** The signal is selected, but is not being output to the program monitor.

## Selecting video signals for the INT VIDEO buttons

When pressed, the INT VIDEO buttons in the BACKGROUND and FOREGROUND rows select one of the following signals. Choose the desired signal by pressing the INT VIDEO SELECT button until the corresponding indicator lights.

**COL BKGD:** A color background signal. You can choose one out of 31 emboss patterns or a plain color background for this signal, and adjust its color.

*For details, see "Selecting color background emboss patterns" below and "Adjusting Color Mattes" (page 4-36).*

**COL BAR:** A color bar signal

**GRID:** A grid signal

**BLACK:** A black burst signal

### Selecting color background emboss patterns

You can choose from among 31 emboss patterns for INT VIDEO color backgrounds, or you can select a plain color background with no emboss pattern. Proceed as follows.

**1** Press the INT VIDEO SELECT button to light the COL BKGD indicator.

If the indicator is already lit, skip this step.

**2**
- **To select an emboss pattern,** press the UP or DOWN button in the PATTERN/KEY PAD section while pressing one of the BACKGROUND or FOREGROUND bus buttons. Each time you press the UP or DOWN button, the next or previous pattern is selected.
  Keep pressing the button until the desired pattern is displayed on the program monitor.
- **To select a plain color background,** press the P IN P/RST button in the PATTERN/KEY PAD section while pressing one of the BACKGROUND or FOREGROUND bus buttons.

## Monitoring the execution of an effect

After selecting the background picture, the foreground picture, and an effect, move the fader lever to the opposite side.
This allows you to check the kind of picture that will be obtained when the effect is executed by viewing it on the program monitor.

# Choosing a DFS-300/300P Effect

The DFS-300/300P DME Switcher has about 350 built-in special effects. This section discusses the various types of effects, and describes the effects assigned to the buttons in the PATTERN/KEY PAD section of the control panel.

## Types of Effects

The effects provided by the DFS-300/300P are classified into groups with names such as "Wipe" and "Picture-in-picture". Each effect has a unique pattern number. Patterns with numbers above 999 are DME (digital multi effects) patterns.

*For more information about pattern names and numbers, see "Effect Pattern Image List" (page A-11).*

### Transition effects and animation effects

Another way of classifying effects is to divide them as follows into two broad categories, depending on how they move and the appearance of the screen after they finish.

**Transition effects:** The foreground picture completely replaces the background picture. When the effect finishes, the lit BACKGROUND and FOREGROUND bus buttons change in color from red to amber, or from amber to red.

**Animation effects:** The foreground picture is inserted into the background picture. Both the background and foreground pictures remain visible after the effect finishes. There is no change in the color of the BACKGROUND and FOREGROUND bus buttons.

*For more information about the category to which individual patterns belong, see "Effects Classified by Direction Type" (page A-6).*

### Attributes and user-modifiable effects

You can change the attributes of some of the basic effect patterns, as follows.

- Add borders between the background and foreground pictures, or blur the border lines.
- Change the position or size of the pattern.
- Modify the effect pattern itself by specifying effect control parameters. Effects that accept effect control parameters are called **user-modifiable effects**.

*For more information about the attributes that can be added to effects, see "Effect Parameters" (page A-4). The parameters of user-modifiable effects are listed in "Effect Control Parameters" (page A-7).*

## Effects assigned to the PATTERN/KEY PAD buttons

The following pages show the effects you can select simply by pressing one of the buttons in the PATTERN/KEY PAD section (direct pattern select mode). The assignments are factory preset, but you can assign other effects to buttons 0 through 9.

*For more information about assigning effects to keypad buttons, see "Changing Direct Pattern Assignments" (page 5-2).*

**button**

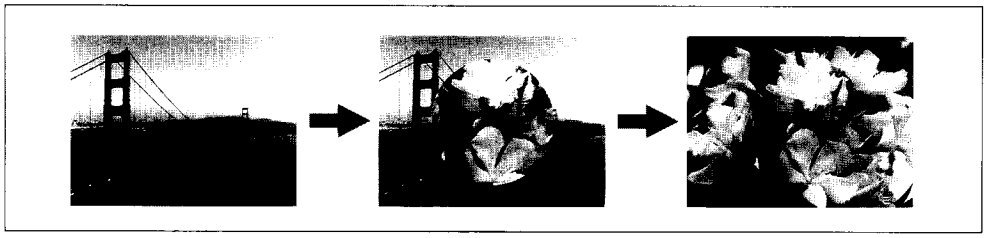
Pattern number: 1 Effect type: Wipe Motion type: Transition
Parameters: Border, soft edge

Pattern number 1 — Wipe

The foreground picture appears at the left side of the screen and gradually moves to the right side, replacing the background picture.

**button**

Pattern number: 24 Effect type: Wipe Motion type: Transition
Parameters: Border, soft edge, X location, Y location



Pattern number 24 — Wipe

The foreground picture appears in a circle at the center of the screen. The circle grows larger until it replaces the background picture.

**9 button**

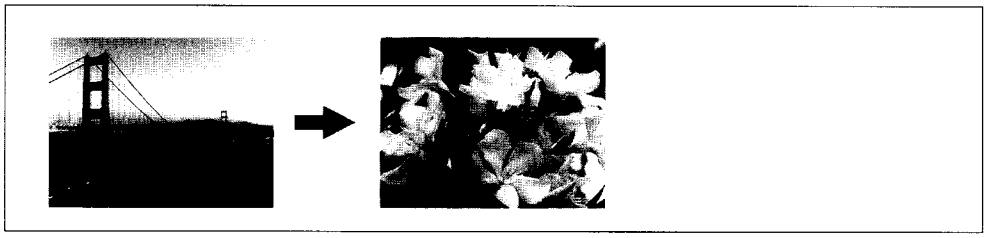
Pattern number: 104 Effect type: Rotary wipe Motion type: Transition
Parameters: Border, soft edge

Pattern number 104 — Rotary wipe

The foreground picture appears at 12 o'clock and rotates in the clockwise direction, replacing the background picture.

**CUT INS button**

Pattern number: 1059 Effect type: Cut Motion Type: Transition
Parameters: None

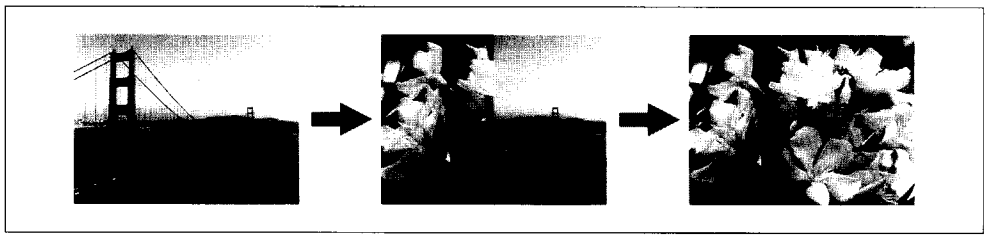


Pattern number 1059 — Cut

The background picture changes instantly into the foreground picture.

**4 button**

Pattern number: 700 Effect type: Matrix wipe Motion type: Transition
Parameters: Border



Pattern number 700 — Matrix wipe

The foreground picture appears in the upper left corner of the screen and replaces the background picture as it moves across the screen in the manner depicted on the button.

**button**

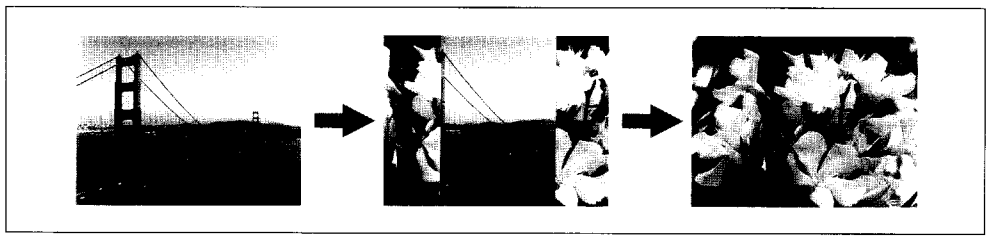
Pattern number: 1300 Effect type: Slide Motion type: Transition
Parameters: Border

Pattern number 1300 — Slide

The foreground picture appears at the right side of the screen and slides in smoothly to replace the background picture.

**button**

Pattern number: 1330 Effect type: Split slide Motion type: Transition
Parameters: Border



Pattern number 1330 — Split slide

The foreground picture replaces the background picture as it slides in from the left and right sides of the screen.

**button**

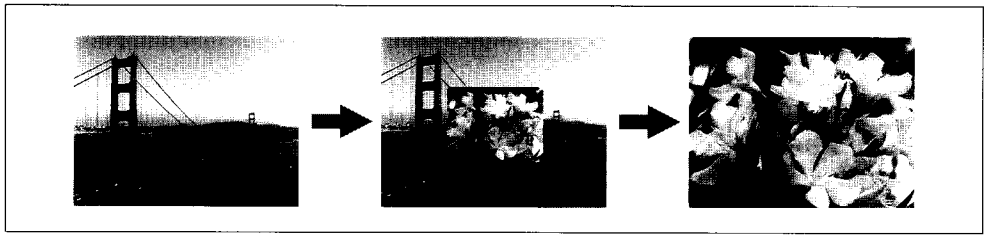
Pattern number: 1080 Effect type: Mix Motion type: Transition
Parameters: None

Pattern number 1080 — Mix

The foreground picture fades in, and the background picture fades out.

**1 button**

Pattern number: 1500 Effect type: Compression Motion type: Transition
Parameters: Border

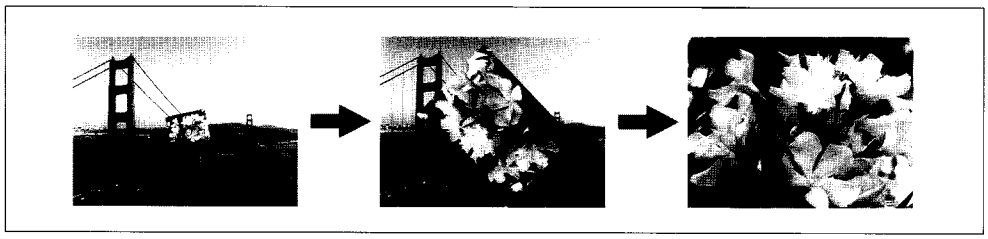


Pattern number 1500 — Compression

The foreground picture appears in the center of the screen, and replaces the background picture as it expands.

**2 button**

Pattern number: 1630 Effect type: Two-dimensional rotation
Motion type: Transition Parameters: Border



Pattern number 1630 — Two-dimensional rotation

A rotating foreground picture appears in the center of the screen, and replaces the background picture as it expands.

**3 button**

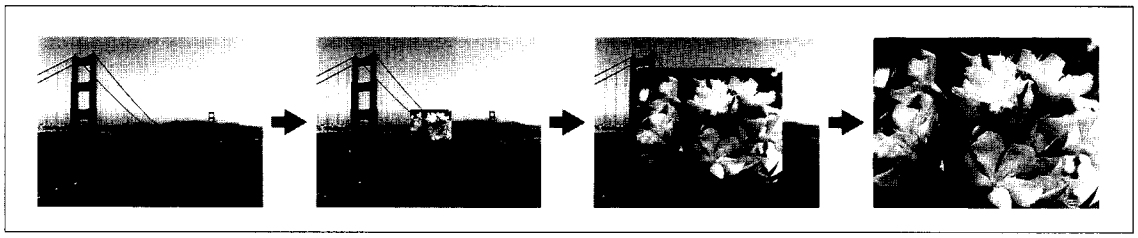
Pattern number: 1850 Effect type: Album page turn
Motion type: Transition Parameters: Border

Pattern number 1850 — Album page turn

The background picture splits down the middle like a book, and the left-hand page turns toward the right, revealing a foreground page. If you install the optional BKDF-301/301P board, this effect becomes more realistic because perspective is added as the page turns.

P IN P RST **button**

Pattern number: 1100 Effect type: Picture-in-picture Motion type: Animation
Parameters: Border, X location, Y location

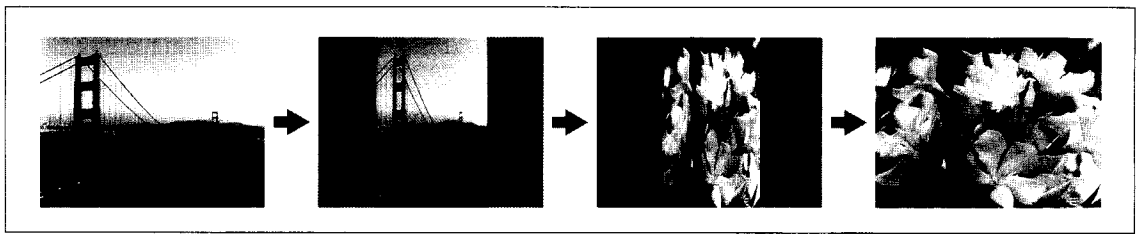


Pattern number 1100 — Picture-in-picture

The foreground picture is inserted into the background picture.

FLIP 0 **button**

Pattern number: 1900 Effect type: Two-dimensional flip
Motion type: Transition Parameters: Border



Pattern number 1900 — Two-dimensional flip

The foreground picture rotates around an axis at the center of the screen, revealing the foreground picture. An internally generated effect matte appears during the transition.

# Selecting Effects With Pattern Buttons

In direct pattern select mode, you can select one of 13 commonly used effect patterns simply by pressing a button in the PATTERN/KEY PAD section. Each of the buttons (except the UP, DOWN, and ENTER buttons) selects a factory-assigned pattern, which is shown on the key top and illustrated in "Effects assigned to the PATTERN/KEY PAD buttons" *(page 4-6)*.
You cannot change the patterns assigned to the P IN P/RST, MIX/DEL, and CUT/INS buttons. But you can assign different patterns to the numeric buttons (0 through 9).

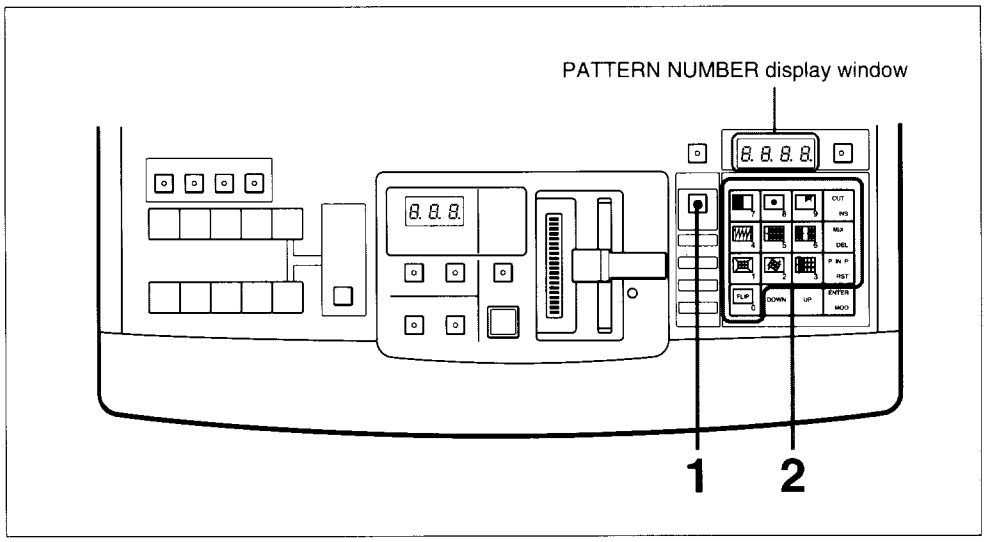
*For details, see "Changing Direct Pattern Assignments" (page 5-2).*

## Operation

To select a pattern in direct pattern select mode, proceed as follows.

**Note**

If the EDIT button in the USER PROGRAM section *(see page 2-16)* is lit, press it to extinguish it before carrying out this procedure.




Selecting a pattern directly

**1** Press the DIRECT PATTERN button.

The button lights, and the unit enters direct pattern select mode.

**2** Press the button for the desired pattern.

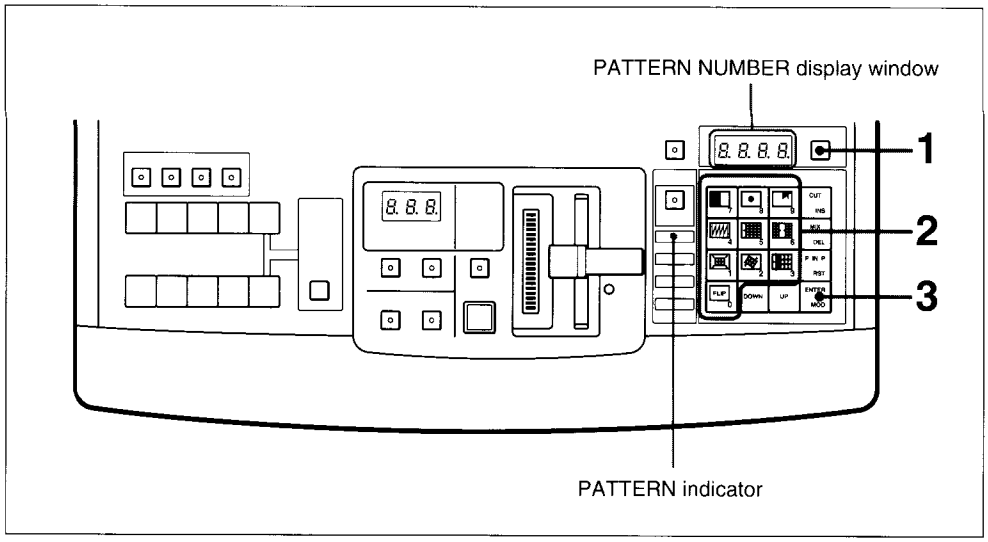
The button lights and the effect assigned to that button is selected. The pattern number appears in the PATTERN NUMBER display window.

# Selecting Effects With Pattern Numbers

In pattern number entry mode, you can select any effect by entering its pattern number.

## Operation

To select a pattern in pattern number entry mode, proceed as follows.




Entering a pattern number

**1** Press the SET button.

The button lights, the PATTERN indicator lights, and the unit enters pattern number entry mode.

**2** Enter the pattern number with the numeric keys (0 to 9) in the PATTERN/ KEYBOARD section.

*For the pattern numbers of all built-in effects, see "Effect Pattern Image List" (page A-11).*

The pattern number appears in the PATTERN NUMBER display window. The dots next to the digits light to inform you that the unit is in data entry mode.

**3** Press the ENTER button.

The dots next to the digits go out, and the pattern is selected.

### If you enter a wrong number

Press the P IN P/RST button to reset the number in the PATTERN NUMBER display window to 0. Then enter the correct number.

**Notes**

- If you enter a number that is not assigned to any pattern, the number changes automatically to the next higher pattern number. However, all numbers above 9309 change to 1.
- Numbers from 3000 to 8999 are reserved for use by the system. A warning tone sounds if you press ENTER after entering one of these numbers.

### To select a pattern number with the UP and DOWN buttons

You can select a pattern number by incrementing or decrementing the number currently displayed in the PATTERN NUMBER display window. Press the UP button to add 1 to the number, or press the DOWN button to subtract 1.
Keep the UP or DOWN button pressed to increment or decrement the number continuously.

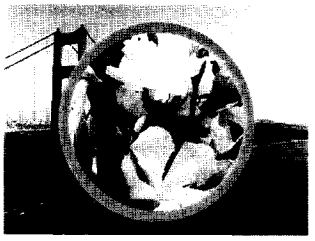
# Modifying the Edge — Border and Soft Edge

Some effects allow you to add a border at the boundary between the background and foreground pictures, or add a soft edge to blur the boundary line.

**Note**

You cannot modify the edge of some effects. A warning tone sounds if you carry out the following procedure after selecting such an effect.

*See "Effect Parameters" (page A-4) for the effects that can be combined with borders and soft edges.*

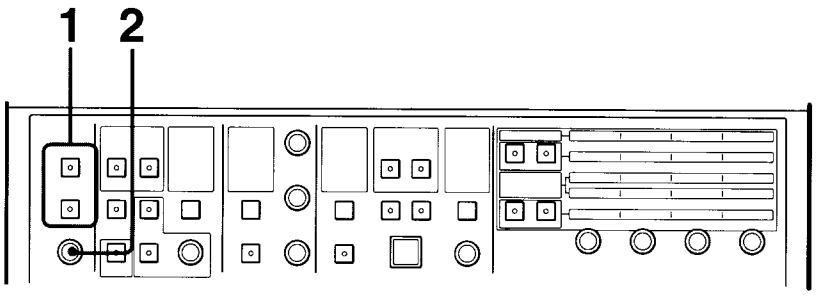


Border

Soft edge

## Operation

To add a border or soft edge, proceed as follows.




Modifying the edge of an effect

**1** Press the BORDER button to add a border, or the SOFT button to add a soft edge.

The button lights. If you pressed BORDER, you can also specify the border color.

*For details, see "Adjusting Color Mattes" (page 4-36).*

**2** Rotate the CONTROL knob.

- If you pressed BORDER in step **1**, rotating the knob adjusts the width of the border.
- If you pressed SOFT in step **1**, rotating the knob adjusts the softness of the edge.

# Changing the Location and Size of a Pattern — Location (X), (Y), (Z)

Some effects allow you to change the size of the effect pattern and the location where it is inserted into the background picture.

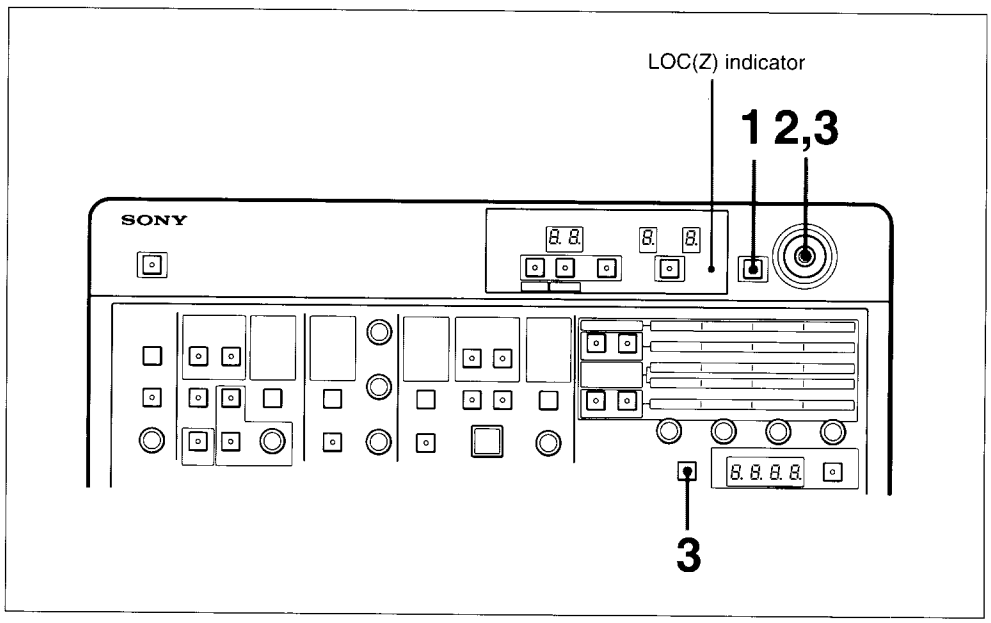
**Note**

You cannot change the location and size of some effects. A warning tone sounds if you carry out the following procedure after selecting such an effect.

*You can change the location and size of patterns that have X, Y, and Z parameters. For details, see "Effect Parameters" (page A-4 ).*

## Operation

To change the location and size of a pattern, proceed as follows.



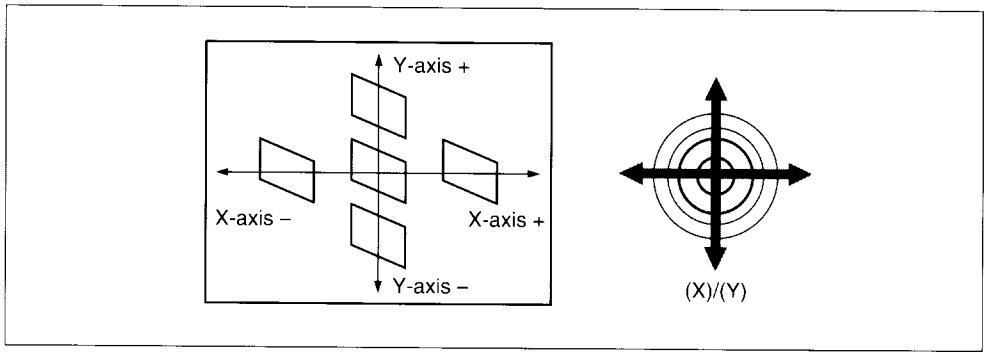

Changing the location and size of a pattern

**1** Press the LOCATION button.

The button lights.

**2** Move the (X)(Y)/(Z) joystick to change the pattern location.

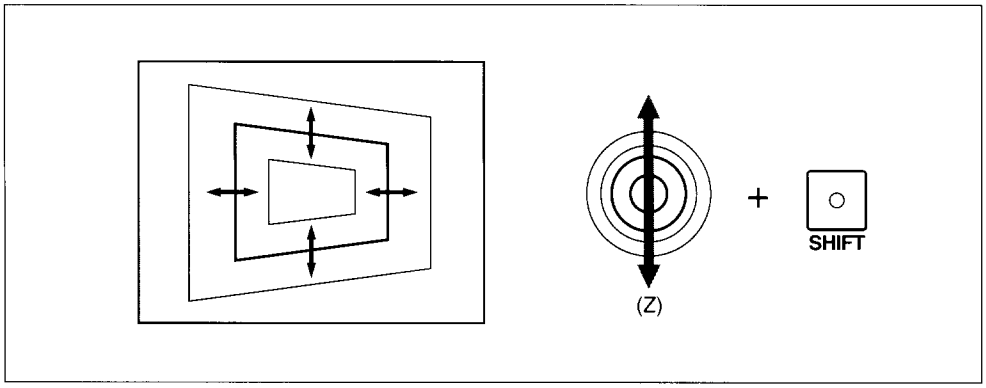
Move the joystick horizontally to change the X-axis location, and vertically to change the Y-axis location.




*(Continued)*

**3** If the LOC(Z) indicator is lit, change the size (Z-axis position) of the effect pattern by moving the (X)(Y)/(Z) joystick vertically while pressing the SHIFT button.

The LOC(Z) indicator lights automatically when you select a pattern that has a Z-axis parameter. If it is not lit, you cannot change the pattern size.



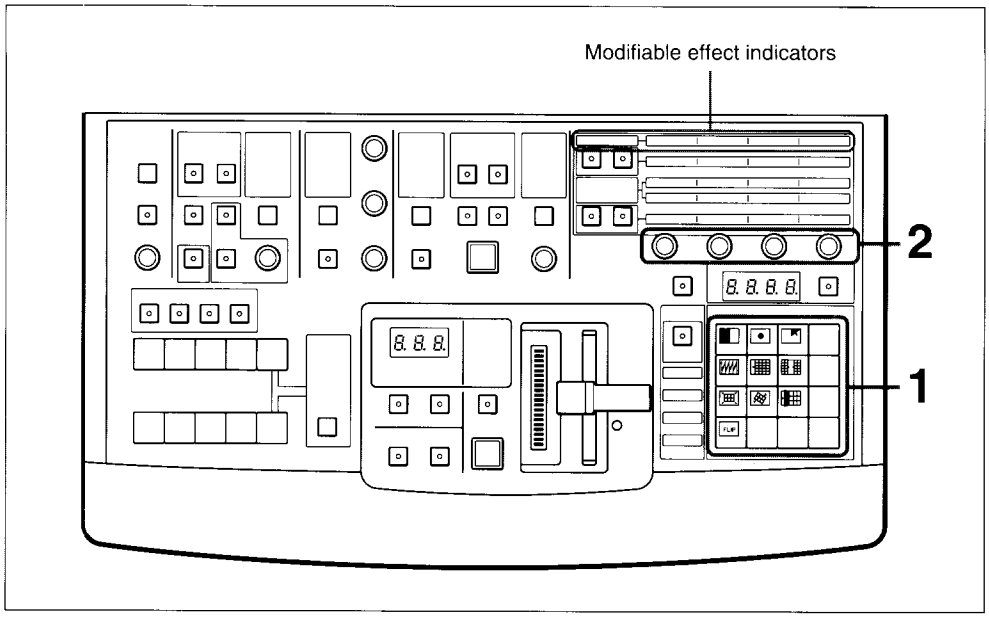
# Modifying a Pattern — User-Modifiable Effects

Some patterns have effect control parameters that allow you to change them in various ways. Such effects are called user-modifiable effects. The parameters vary with each effect.

*For details, see "Effect Parameters" (page A-4).*

## Operation

To change effect control parameters, proceed as follows.




Modifying an effect pattern

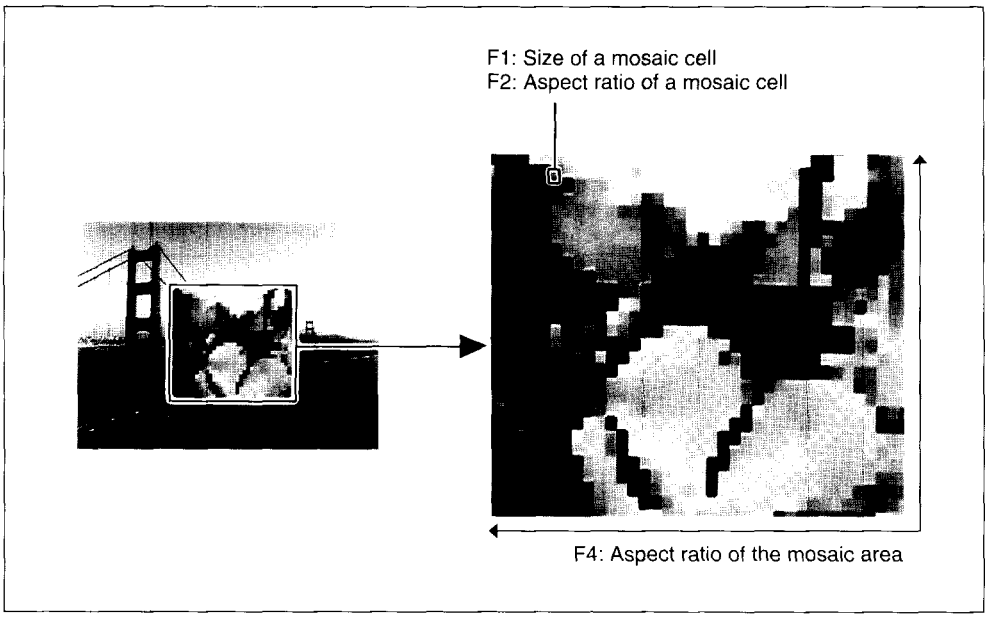
**1** Refer to the table "Effect Parameters" on page A-4 and select a user-modifiable effect.

The modifiable effect indicators in the EFFECTS CONTROL section light. The four knobs below the indicators correspond to indicators F1 through F4. For example, if indicator F1 is lit, you can adjust parameter F1 by rotating the leftmost knob.

**2** Rotate the knobs to adjust the parameters as necessary.

### Example of a user-modifiable effect

Pattern number: 1016 Effect type: Variable mosaic



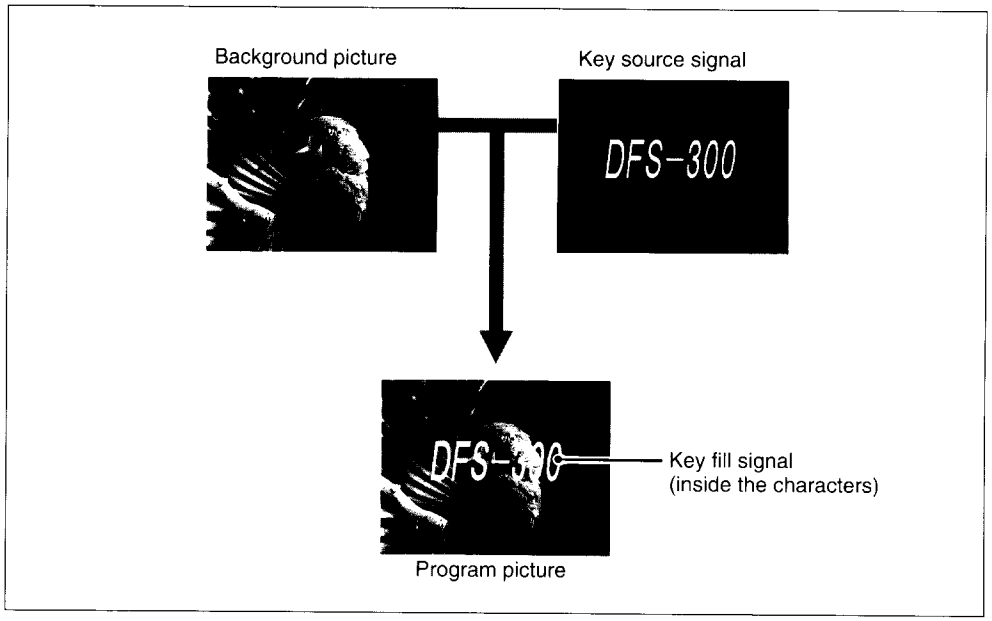

Parameters of variable mosaic effect (1016)

# Superimposing Characters and Graphics 1 —Title Key

Key effects allow you to insert characters and graphics into a background picture. There are two ways to determine the shape of the material to be inserted: luminance key, which uses the brightness of the characters or graphics, and chroma key, which uses their color.

## Luminance key

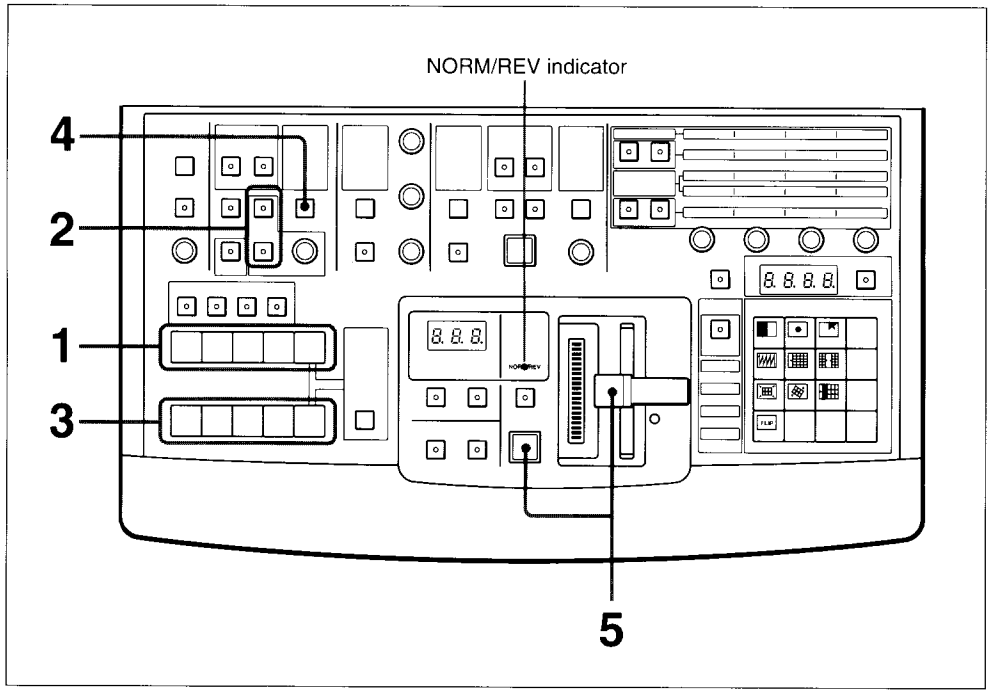
Luminance key inserts characters or graphics into a background by detecting the bright portions in a key source signal. This unit supports two types of luminance key: a luminance self-key, which generates a key source signal from the video signals input to the VIDEO INPUTS connectors, and an external key, which uses the signals input to the EXT KEY IN connector as the key source.




Luminance key

## Operation

To insert a title key into a background picture, proceed as follows.




Inserting a luminance key

**1** Press a BACKGROUND bus button, turning it on, to select the background.

**2** Select the key source signal (the signal containing the characters or graphics).

- **To use a video signal input to the VIDEO INPUTS connectors (self-key mode),** press the LUM KEY button, turning it on.
  The NORM/REV indicator in the EFFECTS TRANSITION section lights.
  The unit enters self-key mode, in which key source signals are generated from video input signals.
- **To use a signal input to the EXT KEY IN connector (external key mode),** press the EXT KEY button, turning it on.
  The NORM/REV indicator in the EFFECTS TRANSITION section lights.
  The unit enters external key mode.

**3** If you selected self-key mode in step **2**, press a FOREGROUND bus button to select the key source signal.
Skip this step if you selected external key mode in step **2**.

**4** Press the FILL button to select the signal that fills the empty areas cut out by the characters or graphics.

**FRGD BUS:** The video selected with the FOREGROUND bus buttons (in self-key mode, the signal that contains the key source signals).

**Notes**

- In external key mode, the video signals selected by the FOREGROUND bus buttons must be synchronized with the external key source signal.
- In external key mode, you cannot select a key fill signal with the FOREGROUND bus INT VIDEO button.

**BORD MAT:** A border matte

**EFF MAT:** An effect matte

When you select a border matte or an effect matte, you can adjust the color of the matte.

*For details, see "Adjusting Color Mattes" (page 4-36).*

**5** Select and execute an effect.

*For details, see "Executing the Effect" (page 4-33).*

The title key appears against the background. The inserted characters or graphics are subjected to the selected effect.

**Note**

Some effects cannot be used in title keys.

*For details, see "Effect Parameters" (page A-4).*

### To leave luminance key mode

Press the LUM KEY or EXT KEY button. The button goes out, and the unit leaves luminance key mode.

### To adjust the outlines of inserted characters or graphics

In self-key mode, adjust the outlines of inserted characters or graphics by rotating the CLIP knob.

In external key mode, adjust the outlines of inserted characters or graphics with the TITLE EXT KEY CLIP control *(see page 2-21)* on the processor unit's internal AD-104 board.

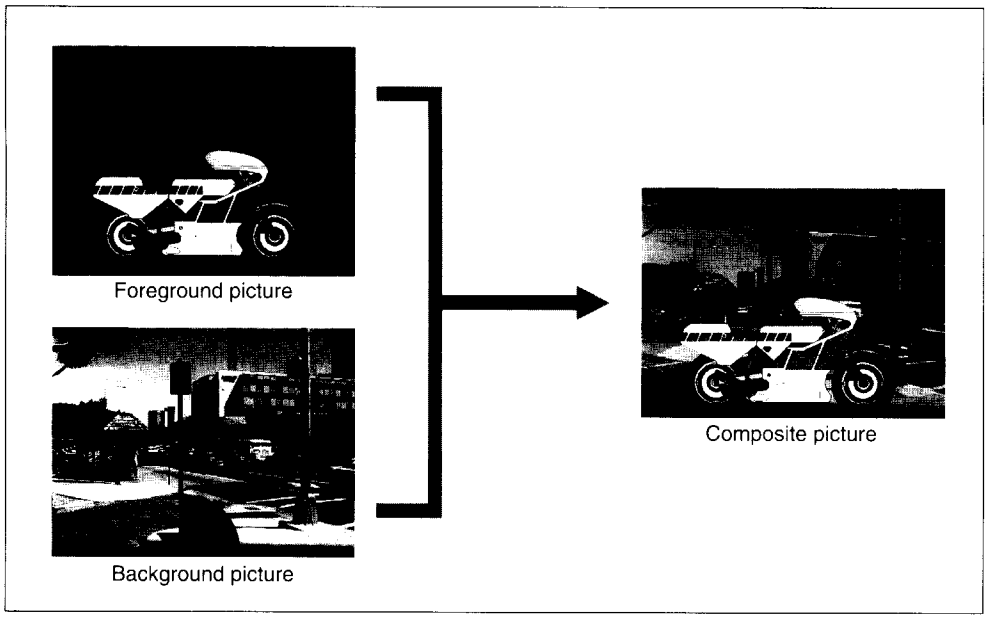
### To invert the polarity of key source signals

Press the KEY INV button so that it lights or goes out, according to the polarity of the key source signals.

- **For white characters on a black background:** Press the KEY INV button so that it goes out.
- **For black characters on a white background:** Press the KEY INV button so that it lights.

# Chroma Key

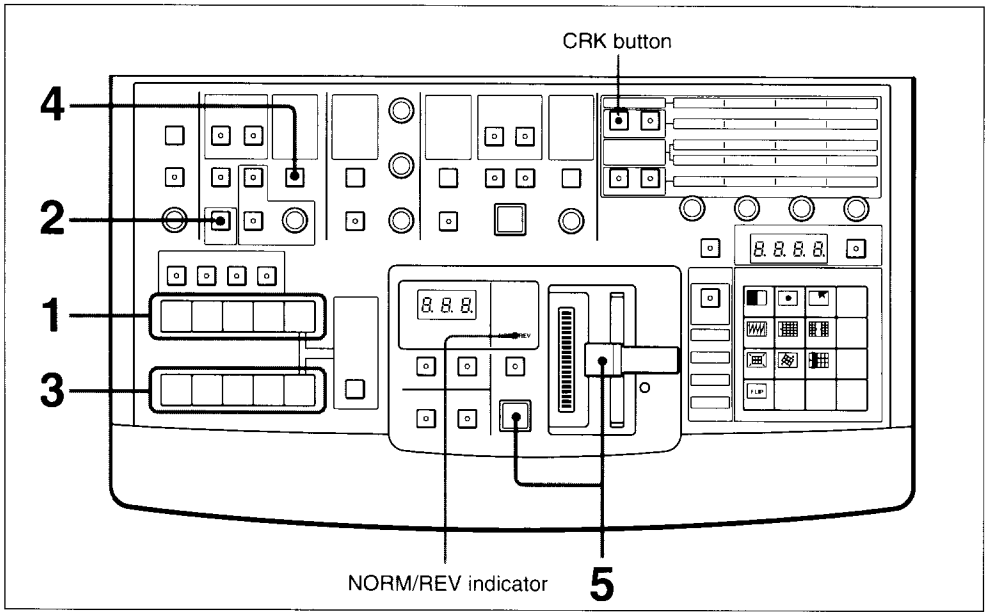
Chroma key inserts fill signals into background video by comparing the signals selected with the FOREGROUND bus buttons to a specified color. Prepare a chroma key source picture showing a subject against a backdrop that consists of a single, highly saturated color (normally blue).




Chroma key

## Operation

To insert a chroma key into a background picture, proceed as follows.




Inserting a chroma key

1 Press a BACKGROUND bus button, turning it on, to select the background.

2 Press the CHROMA KEY button.

The button lights, and the unit enters chroma key mode. The CRK button in the EFFECTS CONTROL section and the NORM/REV indicator in the EFFECTS TRANSITION section light.

3 Press a FOREGROUND bus button, turning it on, to select the key source signal (the signal containing the characters and graphics).

4 Press the FILL button to select a fill signal to insert into the subject area cut out by the key source signal.
**FRGD BUS:** The video selected with the FOREGROUND bus buttons.
**BORD MAT:** A border matte
**EFF MAT:** An effect matte
When you select a border matte or an effect matte, you can adjust the color of the matte.

*For details, see "Adjusting Color Mattes" (page 4-36).*

5 Select and execute an effect.

*For details, see "Executing the Effect" (page 4-33).*

The picture synthesized by the chroma key appears on the screen.

**Note**

Chroma key signals cannot be inverted. A warning tone sounds if you press the KEY INV button.

### To adjust chroma key outlines

1 Press the CRK button in the EFFECTS CONTROL section.

Skip this step if the button is already lit.

2 Rotate the parameter ajustment knobs below the CLIP and HUE indicators.
- Rotate the CLIP knob to adjust the clipping level, so that inserted characters or figures have sharper outlines.
- Rotate the HUE knob so that the colored backdrop in the key source signal picture is entirely replaced by the background picture.

### To leave chroma key mode

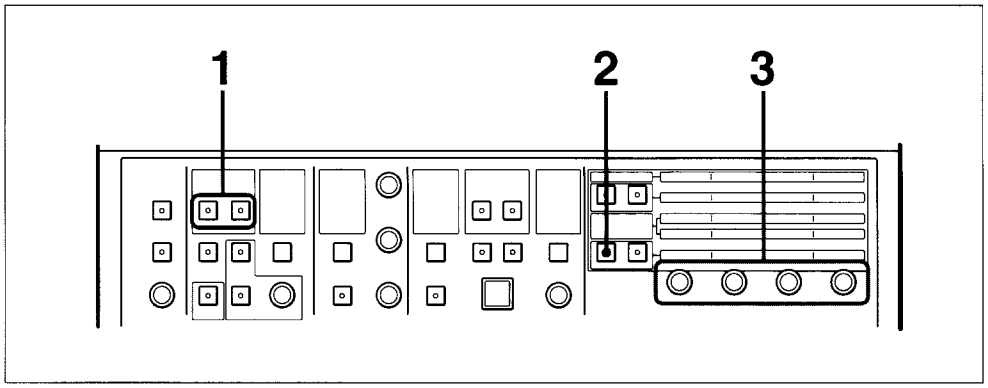
Press the CHROMA key button to extinguish it.

### To turn color cancellation off

When you select chroma key mode, a color cancellation function is activated to smooth the outlines of inserted video signals by changing peripheral colors to gray. To turn this function off, press the CHROMA KEY button while pressing one of the buttons used to select luminance key (either LUM KEY or EXT KEY). If you turn color cancellation off, keying is performed on the basis of both color and luminance.

# Mask — Hiding Part of a Title

You can place a rectangular mask over unnecessary parts of title key signals. The mask is inserted into the background.
Masks can be used with both chroma keys and luminance keys.




Masking part of a title key

**1** Press one of the MASK buttons in the TITLE section, turning it on.
**NORMAL:** Mask the part outside of the rectangle.
**INVERT:** Mask the part inside of the rectangle.

**2** Check to be sure that the TITLE MASK button and indicators in the EFFECTS CONTROL section are lit.
If they are not lit, press the TITLE MASK button to turn them on.

**3** Rotate the parameter adjustment knobs to specify the rectangle.

The four knobs adjust, from left, the LEFT, RIGHT, TOP, and BOTTOM edges of the rectangle.

### To stop masking

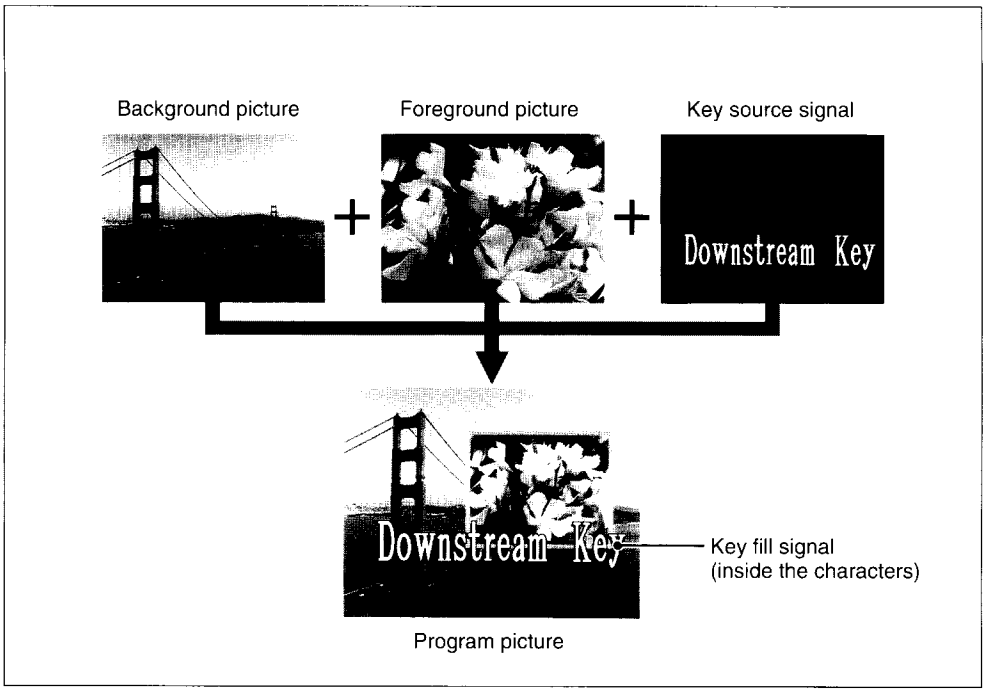
Press the MASK button again to extinguish it.

# Superimposing Characters and Graphics 2 — Downstream Key

Unlike title key, downstream key allows you to insert characters and graphics into a picture that is already made up of background and foreground pictures. The name downstream key (often abbreviated as DSK) refers to the fact that insertion of the third picture takes place in the final stages of processing, after effects have been applied to the other ictures.

**Note**

To use the downstream key functions, you must install the optional BKDF-504/ 504P DSK board.

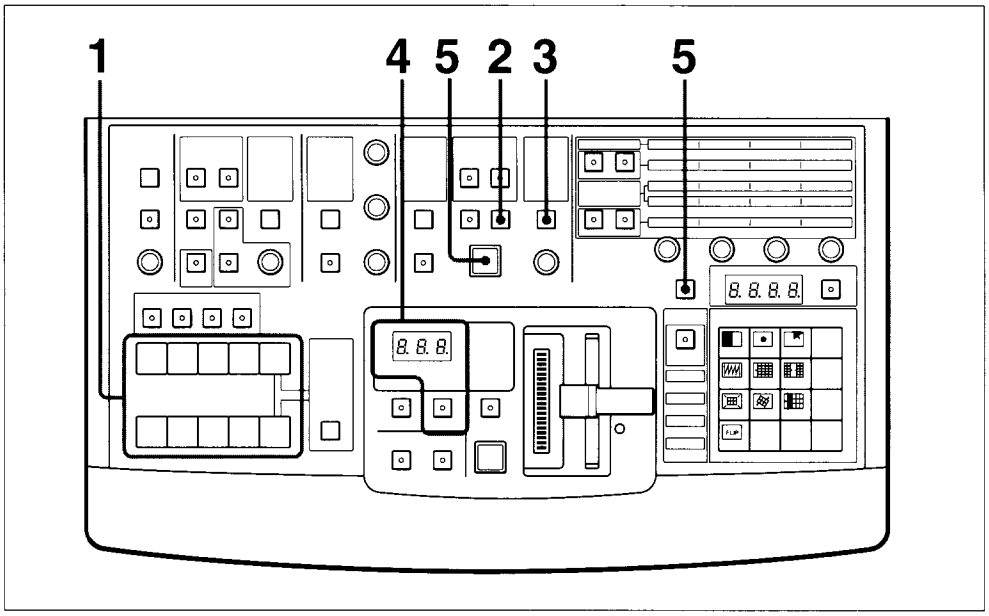



Downstream key

## Operation

To insert a downstream key, proceed as follows.

*See "Key Signal Connections" (page 7-3) for information about connecting the key source and key fill signals.*




Inserting a downstream key

**1** Create a picture into which to insert the downstream key.
Select background and foreground pictures, and execute an effect.

**2** Select a source for the DSK key signal, which contains the characters or graphics.

- **To use the signal input to the DSK KEY IN connector as the DSK key source (external key mode),** press the EXT KEY button to light it.
- **To use a signal input to the DSK VIDEO IN connector as the DSK key source (self-key mode),** press the EXT KEY button to extinguish it. The DSK source signal is generated from the luminance signal of the video input to the DSK VIDEO IN connector.

**3** Press the FILL button to select the signal that fills the empty areas cut out by the characters or graphics.
**DSK VIDEO:** The signal input to the DSK VIDEO IN connector.
**DSK MAT:** The internal DSK matte.
**NONE:** No fill signal (border only).

**Note**

If you select NONE, the BORDER button in the DOWNSTREAM KEYER section turns on. If you turn the BORDER button off, the downstream key will not appear on the screen.

*For more information about DSK borders, see "Adding a downstream key border" (page 4-28).*

**4** For a fade-in effect, set an optional transition duration.
Skip this step if you want an instantaneous insertion.

*For more information about setting the duration, see "Setting the Transition Duration" (page 4-30).*

**5** • **If you selected a fade-in effect,** press the DSK MIX/DSK CUT button alone.
• **If you did not select a fade-in effect,** press the DSK MIX/DSK CUT button while pressing the SHIFT button.

The downstream key appears on the screen. The DSK MIX/DSK CUT button lights in amber during a fade-in transition, and lights in red when the insertion is complete.

### To remove the downstream key

Press the same button(s) you pressed to insert the key.

- **If you selected a fade-in effect,** press the DSK MIX/DSK CUT button alone to fade out the downstream key using the same transition duration.
- **If you did not select a fade-in effect,** press the DSK MIX/DSK CUT button while pressing the SHIFT button to remove the downstream key instantly.

When the downstream key is removed, the DSK MIX/DSK CUT button turns off.

### To adjust downstream key outlines

If the outlines of the inserted characters or graphics are unclear, adjust them by rotating the CLIP/GAIN knob.

- **To adjust the clipping level (threshold luminance level),** rotate the CLIP/GAIN knob.
- **To adjust the gain (sharpness of the outline),** rotate the CLIP/GAIN knob while pressing the SHIFT button in the keypad section.

### To invert the polarity of downstream key source signals

Press the KEY INV button so that it lights or goes out, according to the polarity of the key source signals.

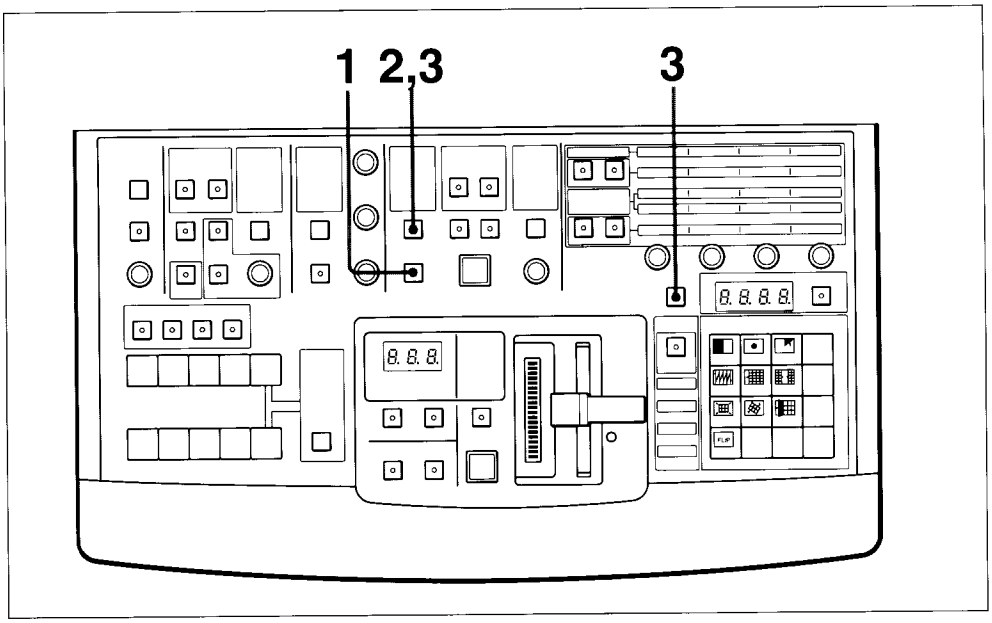
- **For white characters on a black background:** Press the KEY INV button so that it goes out.
- **For black characters on a white background:** Press the KEY INV button so that it lights.

## Adding a downstream key border

You can add a border around the inserted characters or graphics, and adjust the color of the border.

*For details about adjusting the color, see "Adjusting Color Mattes" (page 4-36).*

To add a downstream key border, proceed as follows.




Adding a downstream key border

**1** Press the BORDER button, turning it on.

**2** Press the TYPE/POSITION button until the indicator for desired border type lights.
**WIDE BORD:** Wide border
**NARW BORD:** Narrow border
**DROP BORD:** Drop border (like a background shadow)
**DOUBLE:** Double border (combination of narrow and drop borders)

**3** If you selected a drop or double border in step **2**, you can change its position. Press the TYPE/POSITION button while pressing the SHIFT button. Each press of the button changes the position of the border relative to inserted characters or graphics, in the order upper left → upper right → lower right → lower left.

**Note**

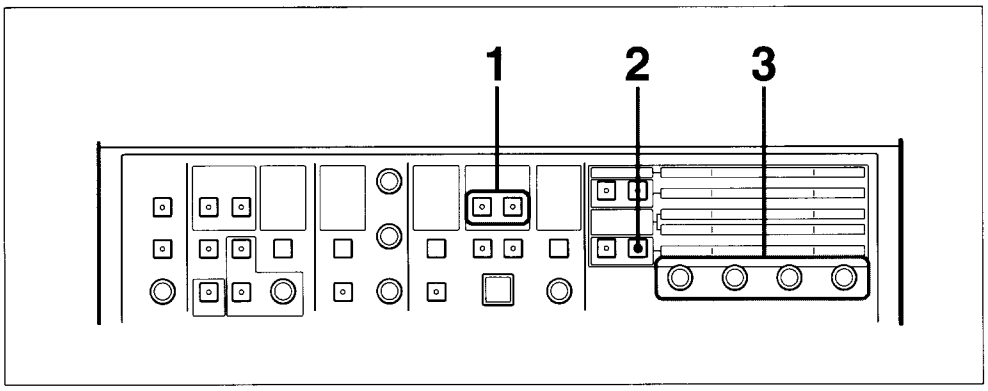
The positions of wide and narrow border cannot be changed.

### To remove the border

Press the BORDER button to extinguish it.

## Masking part of a downstream key

You can place a rectangular mask over unnecessary parts of a downstream key.




Masking part of a downstream key

**1** Press one of the MASK buttons, turning it on.
**NORMAL:** Mask the part outside of the rectangle.
**INVERT:** Mask the part inside of the rectangle.

**2** Check to be sure that the DSK MASK button and indicators in the EFFECTS CONTROL section are lit.
If they are not lit, press the DSK MASK button to turn them on.

**3** Rotate the parameter adjustment knobs to specify the rectangle.
The four knobs adjust, from left, the LEFT, RIGHT, TOP, and BOTTOM edges of the rectangle.

### To stop masking

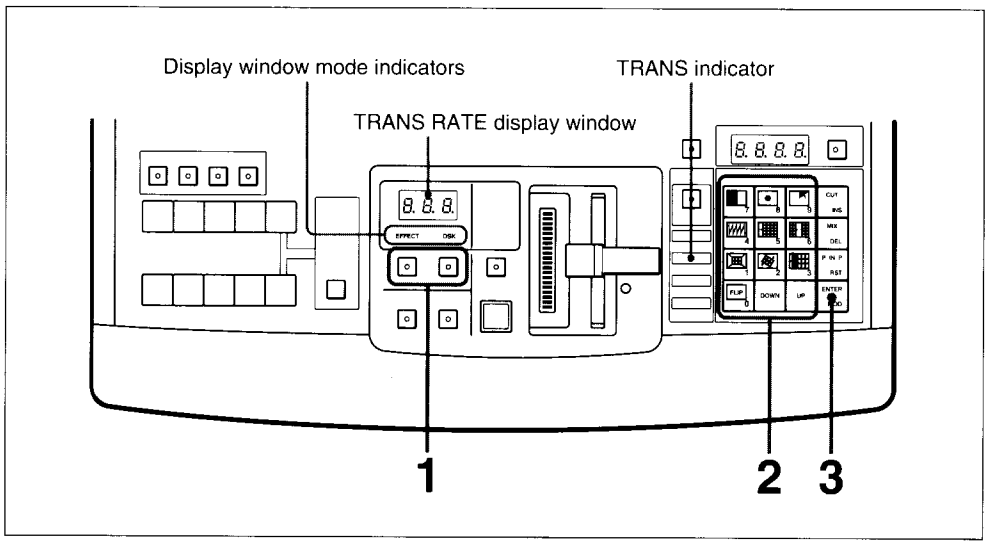
Press the MASK button again to extinguish it.

# Setting a Transition

## Setting the Transition Duration

The transition duration is the amount of time from the beginning to the end of an effect, expressed in units of frames (30 frames per second for DFS-300/25 frames per second for DFS-300P). You can set transition durations to any number up to 999, and set separate durations for effects and downstream keys.

### Operation




Setting the transition duration

**1** • **To set an effect transition duration,** press the EFFECT button.
• **To set a downstream key transition duration,** press the DSK button.

The button lights, a display window mode indicator (EFFECT or DSK) lights, and the TRANS indicator lights.

**Note**

If the EDIT button in the USER PROGRAM section *(see page 2-16)* is lit, press it to extinguish it. You cannot set a transition duration while the EDIT button is lit.

**2** Using the numeric buttons (0 to 9), enter a duration from 0 to 999 frames.

The entered value appears in the TRANS RATE display window, and the dots next to the digits light. You can increment or decrement the value by pressing the UP or DOWN button.

**3** Press the ENTER button.

The entered duration is accepted, and the dots next to the digits go out.

#### If you enter an incorrect value

Press the P IN P/RST button to reset the value to 0, then enter the correct value.

## Freezing a background picture

Before executing an effect, press one of the FREEZE buttons in the EFFECTS TRANSITION section.
**FIELD:** The background freezes in field freeze mode (1/2 of a frame).
**FRAME:** The background freezes in frame freeze mode.
The button lights, and the background freezes at the field or frame at the beginning of an effect.
Normally you will use this button to freeze the background picture. But if you have selected an animation effect you can also freeze the foreground picture.

*For details, see "Additional Functions" (page A-28).*

### To release the freeze

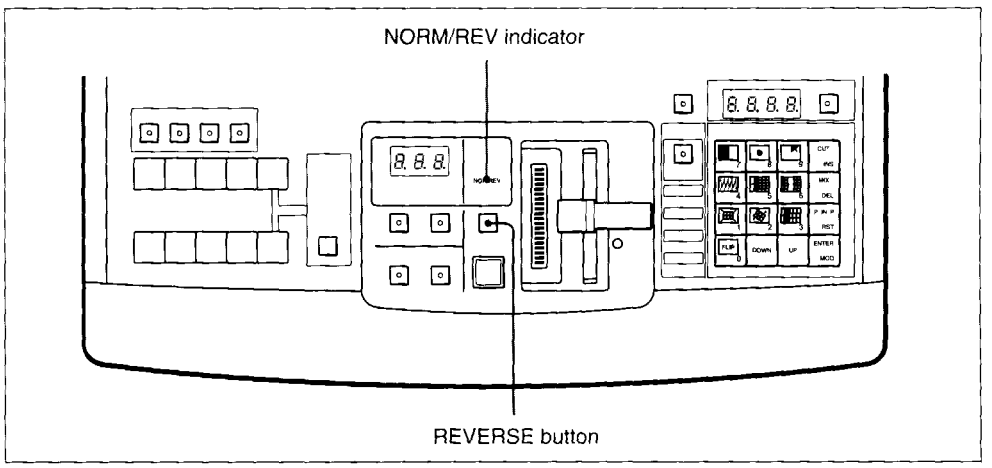
Press the button you pressed to freeze the picture, turning it off.

### To freeze the background at any time

Press the FIELD or FRAME button while pressing the SHIFT button in the keypad section.

# Setting the Transition Direction

Transition-type effects can be executed in two directions: the normal direction, in which the foreground picture replaces the background picture; and the reverse direction, in which the background picture replaces the foreground picture.
To execute a transition-type effect in the reverse direction, press the REVERSE button, turning it on. To return to normal direction, press the REVERSE button again to extinguish it.
Animation-type effects are also executed in both directions, but the direction changes automatically each time the effect is repeated, and the REVERSE button lights and goes out automatically. The NORM/REV indicator lights to show that you have selected such an effect. [1)]



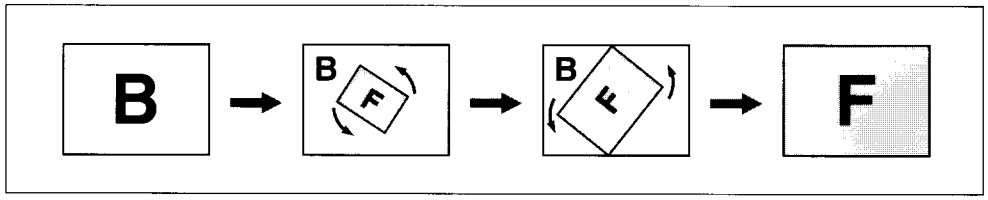

Setting the transition direction

1) The NORM/REV indicator does not light if you have set the processor unit's editing control unit select switch *(see page 2-22)* to RM-450 or BVE-600.

## Transition direction in transition-type effects

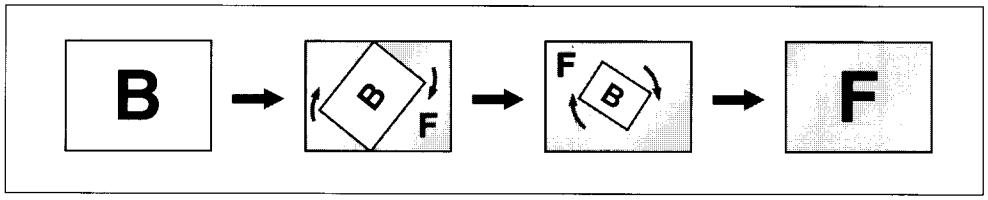
In the figures below, B represents the background picture and F represents the foreground picture.

### Normal direction (REVERSE button not lit)




Normal direction of effect pattern 1630

### Reverse direction (REVERSE button lit)

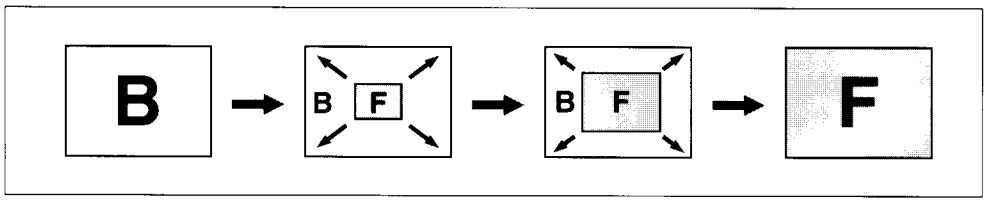



Reverse direction of effect pattern 1630

## Transition direction in animation-type effects

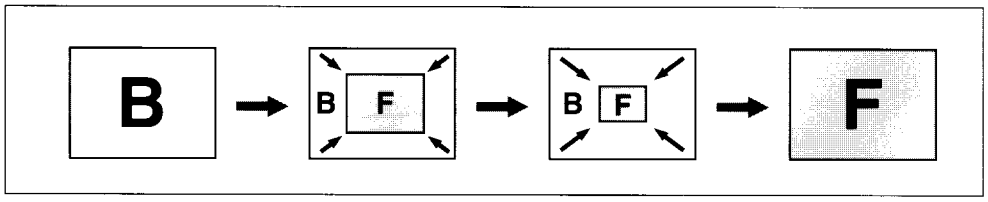
In the figures below, B represents the background picture and F represents the foreground picture.

### Normal direction (REVERSE button not lit)




Normal direction of effect pattern 1100

### Reverse direction (REVERSE button lit)

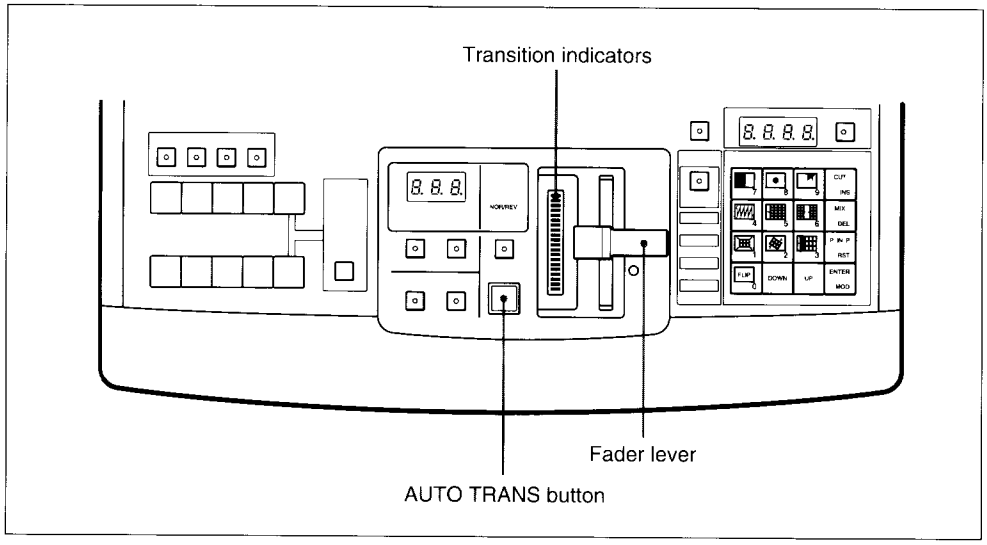



Reverse direction of effect pattern 1100

*To learn the direction type of an effect, see "Effects Classified by Direction Type" (Page A-6).*

# Executing the Effect

After setting the transition direction, execute the effect by moving the fader lever or pressing the AUTO TRANS button.




Executing the effect

## Executing effects with the fader lever

The fader lever allows you to control the effect manually. Move it to the opposite side at the desired speed to vary the speed of the transition. As the lever moves, the transition indicators to the left of the lever light to show its position.
In effects such as cuts, in which the pictures change instantly, the pictures change when the lever reaches the middle position.

**Note**

After turning the DFS-300/300P on, activate the fader lever by moving it all the way to the opposite side.

### To stop the transition partway

Stop moving the fader lever.

### To resume the transition

Move the fader lever again.

## Executing effects with the AUTO TRANS button

Press the AUTO TRANS button to execute the effect using the duration set for the transition.

### To momentarily interrupt the transition

Press the AUTO TRANS button again during the transition. The button goes out and the effect is interrupted.

**Note**

If the fader lever is left between the uppermost and lowermost positions, the transition will be interrupted when it reaches the point corresponding to the fader lever position. Be sure to move the fader lever to the uppermost or lowermost position if you do not want the transition to be interrupted.

### To resume an interrupted transition

Press the AUTO TRANS button again.

## Using the fader lever in combination with the AUTO TRANS button

After interrupting a transition started with the fader lever, you can use the AUTO TRANS button to resume and complete it. You can also use the fader lever to resume and complete a transition started with the AUTO TRANS button.

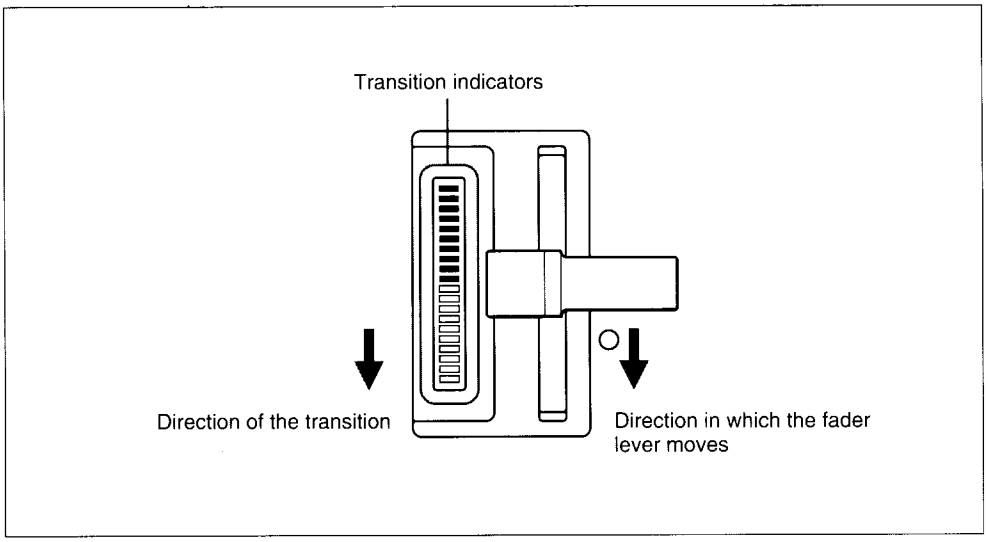
- When you use the AUTO TRANS button to resume a transition started with the fader lever, the remaining duration is applied to the remaining part of the transition. For example, if you set a transition duration of 100 frames and execute the first 25 frames with the fader lever, the remaining duration when you resume execution with the AUTO TRANS button is 75 frames.
- When you use the fader lever to resume a transition that was started and interrupted with the AUTO TRANS button, execution resumes when the fader lever reaches the position corresponding to the point where the transition was interrupted.

**Note**

When you execute an automatic transition from an editing control unit connected to the 9-pin EDITOR connector, the transition is always executed from beginning to end, regardless of the position of the fader lever.

## To check the stage and direction of a transition

You can check the stage and direction of both manual and automatic transitions by checking the transition indicators—the 20 LEDs to the left of the fader lever. These LEDs light in the direction of the transition as the transition proceeds, and go out when the transition is complete.
If the transition is interrupted, lit LEDs remain lit. You can continue the transition by moving the fader lever in the direction of the LEDs which are not lit.




LED transition indicators

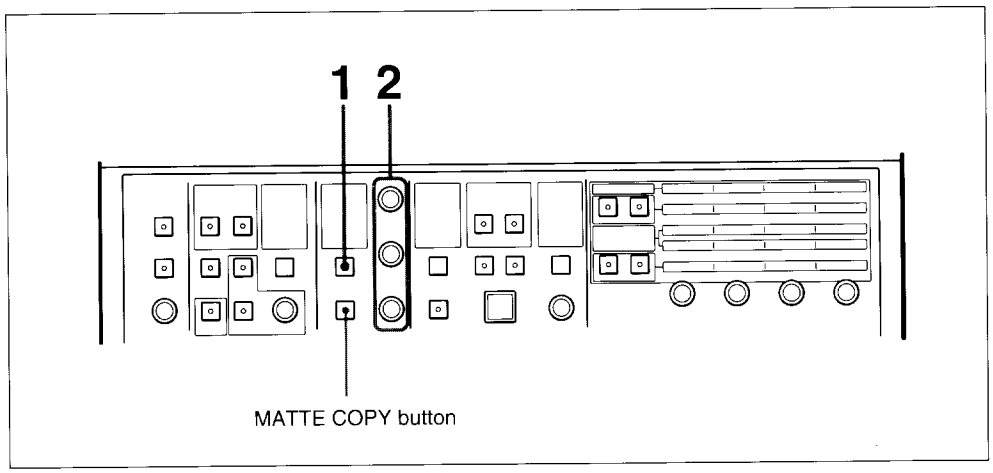
The figure above shows a transition that has just passed the midway point, with the LEDs lighting from the top toward the bottom.

# Adjusting Color Mattes

The DFS-300/300P is equipped with three built-in signal generators (five when the optional BKDF-504/504P board is installed) to generate color matte signals. You can adjust the color of each matte independently, and copy a color from one matte to another.

## Operation

To adjust a color matte, proceed as follows.




Adjusting color mattes

**1** Press the SELECT button to select a color matte for adjustment.
The corresponding indicator lights. (However, the DSK MAT and DSK BORD indicators light only when the optional BKDF-504/504P board is installed.)

**COL BKGD (color background):** The color matte used in background and foreground pictures.

**BORD MAT (border matte):** The color matte used for borders, and as a key fill signal for titles.

**EFF MAT (effect matte):** The color matte used in effect patterns, and as a key fill signal for titles.

**DSK MAT (downstream key matte):** The color matte used as a downstream key fill signal.

**DSK BORD (downstream key border matte):** The color matte used as the border of a downstream key signal.

**2** Rotate the HUE, SAT, and LUM knobs to adjust the hue, saturation, and luminance of the matte.

**Note**

If you rotate the LUM knob when the color matte signal is set to high luminance, the saturation value is adjusted automatically to avoid exceeding specifications.

### Copying color matte data

To copy color matte data, proceed as follows.

**1** Press the SELECT button to select the matte you want to copy from.

The corresponding indicator lights.

**2** Press the MATTE COPY button, turning it on.

**3** Press the SELECT button to select the color matte you want to copy to.

The corresponding indicator lights. The indicator for the copy source matte (the matte selected in step **1**) begins to flash.

**4** Press the MATTE COPY button again.

The button goes out, and the copy destination matte is set to the same color as the copy source matte.

### To cancel the copy operation

In step **3**, select the same color matte you selected in step **1**, and press the MATTE COPY button. The copy operation is canceled.

# Adjusting the Color Balance — Color Corrector

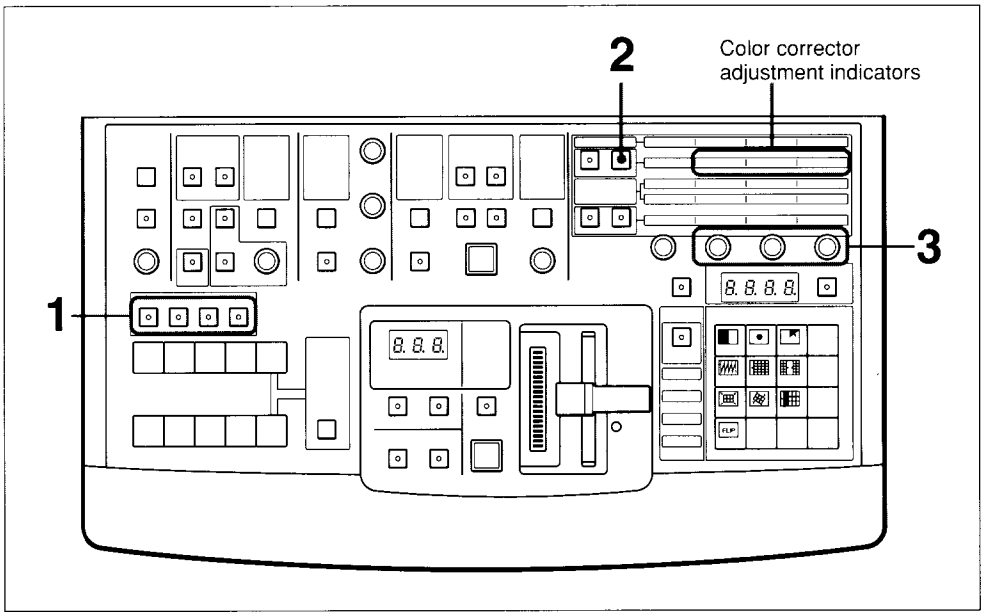
You can use the built-in color corrector of the DFS-300/300P to adjust the white balance or change the overall color balance of a picture. The object of color correction is one of the four primary input signals (the signals input to the VIDEO INPUTS 1 to 4 connectors).

**Note**

Color corrector settings are not saved in snapshots.

## Operation

Proceed as follows to adjust the white balance or overall color balance of an input signal.




Using the color corrector

**1** Press one of the COLOR CORRECTION 1 to 4 buttons in the primary crosspoint bus section.

The button lights and the corresponding input signal is selected.

**Notes**

- You cannot select more than one input signal at a time for adjustment by the color corrector.
- Color correction affects the background picture as well as the foreground picture. You cannot adjust only the background or only the foreground picture.

**2** Press the COL CRRCT button in the EFFECTS CONTROL section. (If the COL CRRCT button is already lit, skip this step.)

The button lights, and the color corrector adjustment indicators (HUE, OFFSET, C GAIN) to the right of the button light.

**3** While viewing the picture on the monitor, rotate the parameter adjustment knobs corresponding to the color corrector adjustment indicators.

**HUE:** Rotate to adjust the color balance of the picture.

**Note**

Rotating the HUE knob has no effect when the OFFSET value is set to the minimum value.

**OFFSET:** Rotate to select the color correction range of the HUE knob. Rotating this knob clockwise widens the range. Rotating it counterclockwise narrows the range to permit fine adjustments with the HUE knob.

**C GAIN:** Rotate to adjust the chroma gain (video amplification) of the input signal.

### To reset the color corrector settings (no color correction)

Select an input signal, and press the P IN P/RST button in the keypad section while holding down the COL CRRCT button in the EFFECTS CONTROL section.

The picture on the monitor changes to a picture with no color correction, and the OFFSET value changes to the minimum value. If you want to continue with color correction, rotate the knob corresponding to the OFFSET indicator to select a moderate adjustment range, and adjust by rotating the HUE knob.

### To turn the color corrector off

Press the lit COLOR CORRECTION 1 to 4 button.
The button goes out and the color corrector is turned off.

# Chapter 5
# Advanced Operations

This chapter explains how to assign effects to keypad buttons, how to create, edit, execute, and delete user program effects, and how to use control panel snapshots.

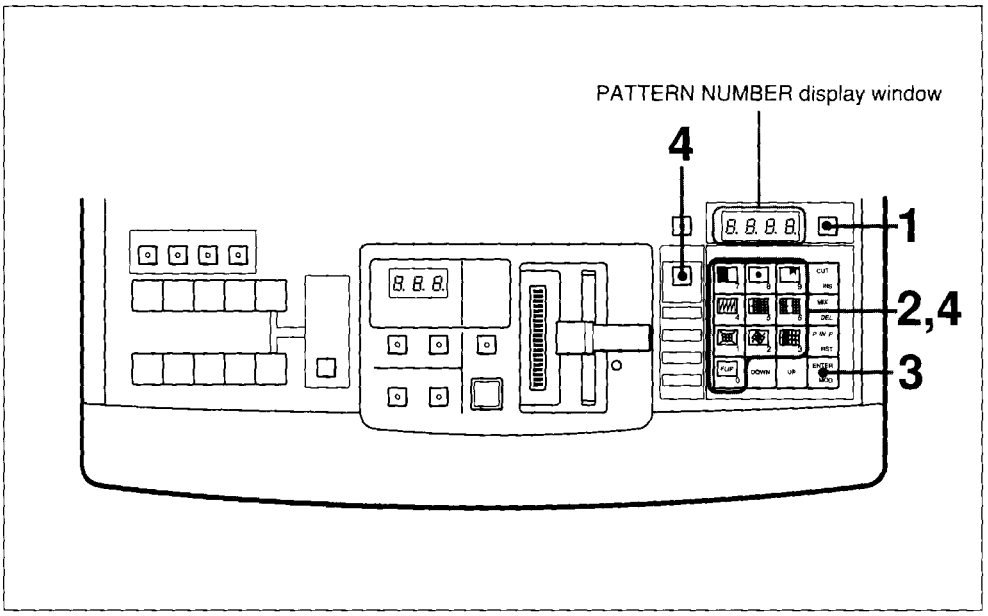
**Changing Direct Pattern Assignments ..... 5-2**
**User Program Effects ..... 5-4**
Designing User Program Effects ..... 5-4
Creating New User Program Effects ..... 5-10
Editing User Program Effects ..... 5-12
Executing User Program Effects ..... 5-18
Deleting User Program Effects ..... 5-19
**Snapshots ..... 5-20**
Registering Snapshots — Learn ..... 5-21
Recalling Snapshots — Recall1 ..... 5-22

# Changing Direct Pattern Assignments

You can change the effect patterns assigned to the numeric buttons (0 to 9) in the keypad section. Doing so allows you to select frequently used patterns simply by pressing the corresponding buttons in direct pattern selection mode.
However, note that the patterns assigned to the CUT/INS, MIX/DEL, and P IN P/RST buttons cannot be changed.

## Operation

To change the pattern assigned to a numeric button, proceed as follows.




Changing direct pattern assignments

**1** Press the SET button.

The button lights, the PATTERN NUMBER display window mode indicator lights, and the unit enters pattern number entry mode.

**2** Use the numeric buttons to enter the pattern number you want to assign to a button.

*For more information about pattern numbers, see "Effect Pattern Image List" (page A-11).*

The number you enter appears in the PATTERN NUMBER display window.

**3** Press the ENTER button.

**4** While holding down the DIRECT PATTERN button, press the numeric button (0 to 9) to which you want to assign the pattern.

The numeric button and the number in the PATTERN NUMBER display window flash three times, and the pattern number entered in step **2** is assigned to the button.

## To restore the default assignments (direct pattern initialization)

After changing pattern assignments, you can restore the factory default assignments shown in "Effects assigned to the PATTERN/KEYPAD buttons" *(page 4-6)*.
Proceed as follows to return all of the numeric buttons (0 to 9) to the factory default assignments.

**1** If the EDIT button in the USER PROGRAM section is lit, press it so that it goes out.

**2** Press the DIRECT PATTERN button, turning it on.

**3** While holding down the P IN P/RST and the DOWN button in the keypad section, press the DIRECT PATTERN button.

A buzzer sounds, and the factory default assignments are restored.

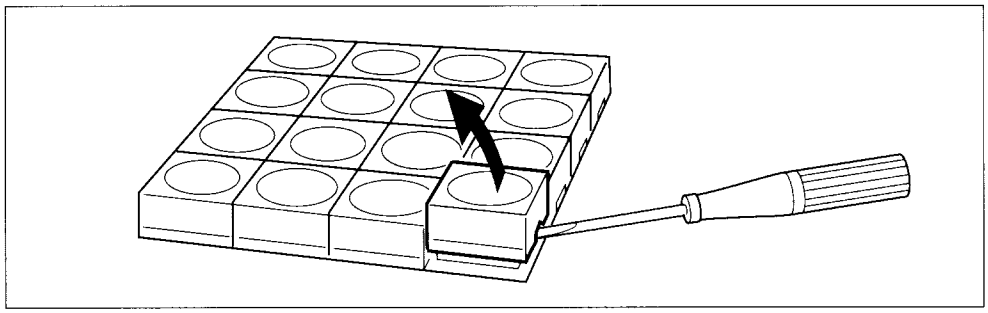
## Replacing button labels

After changing a pattern assignment, you may want to replace the label of the numeric button.
Proceed as follows.

**1** Draw a new pattern on one of the supplied button labels.

**2** Remove the button by inserting a small screwdriver into the hole on the side of the button.

To remove a button at the center, first remove the adjacent buttons.



**3** Remove the old label, and replace it with the new label.

**4** Return the button to its original position.

# User Program Effects

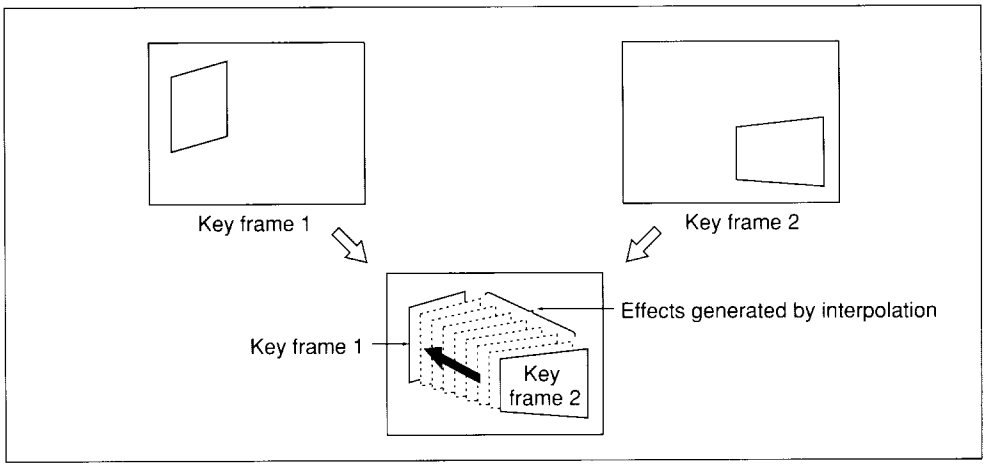
You can add to the DFS-300/300P's store of built-in effect patterns by creating and registering your own effect patterns. Such effects are called user program effects. You can register up to 20 user program effects, or up to 40 if you install the optional BKDF-301/301P 3D Effects Board. They are executed in the same way as built-in effects, by specifying the pattern number.

## Designing User Program Effects

This section provides information that you need to design your own user program effects.

### The structure of user program effects

User program effects are effect patterns with specific shapes and directions, as defined by parameters stored in records called key frames.
For each user program effect, you can register up to eight key frames, numbered 1 through 8. When you execute a user program effect, it begins as the effect defined by the highest numbered key frame and changes gradually into the effect defined by key frame 1, passing in equal stages through any intermediate key frames.
Lower numbered key frames are created first and executed last, so user program effects normally move in the direction opposite to the one you see when creating them. But you can execute the lower numbered key frames first by pressing and lighting the REVERSE button.
Transitions between key frames are smooth because spline interpolation is used to generate intermediate effects. You can control the smoothness of the transition by adjusting the smoothness of the spline curves.




Structure of user program effects

If you execute a user program effect that consists of a single key frame, the result is that the foreground picture appears against the background picture, subjected only to the effect defined for key frame 1.

## User program effect types

There are four types of user program effects. The four types must be registered under the pattern numbers shown below.

Types of user program effects

| Type of effect | | Pattern numbers |
|---|---|---|
| Linear | Transition | 9000 to 9009 |
| | Animation | 9100 to 9109 |
| Nonlinear [a] | Transition | 9200 to 9209 |
| | Animation | 9300 to 9309 |

a) You need to install the optional BKDF-301/301P board to use nonlinear effects.

### Linear effects

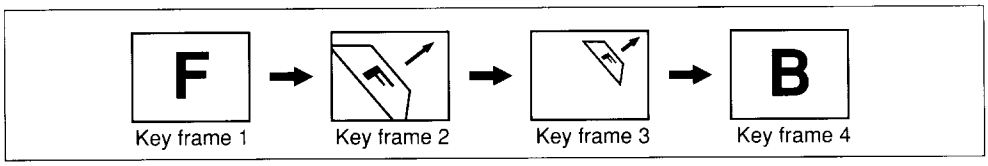
These effects have parameters for X, Y, and Z-axis rotation, expansion, reduction, and movement. *(For the parameters, see page 5-7.)*

### Nonlinear effects

These effects have parameters for forms such as page turn, page roll, and sphere, plus parameters for Z-axis rotation, expansion, reduction, and movement. *(For the parameters, see page 5-8.)*

### Transition effects

When this type of effect is executed, a background picture (B) is replaced by a foreground picture (F).

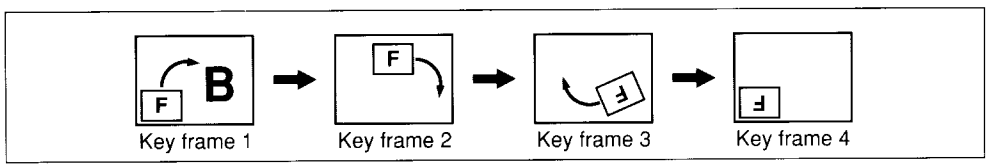



Creating a transition effect

When an effect created as shown is executed in normal order (REVERSE button not lit), it executes from key frame 4 to key frame 1, and the foreground picture moves in from the upper right. Note that the optional BKDF-301/301P board must be installed to add the perspective shown in the figure.

### Animation effects

In this type of effect, a foreground picture (F) moves around against a background picture (B). You can define the shape of the foreground picture and the way it moves.



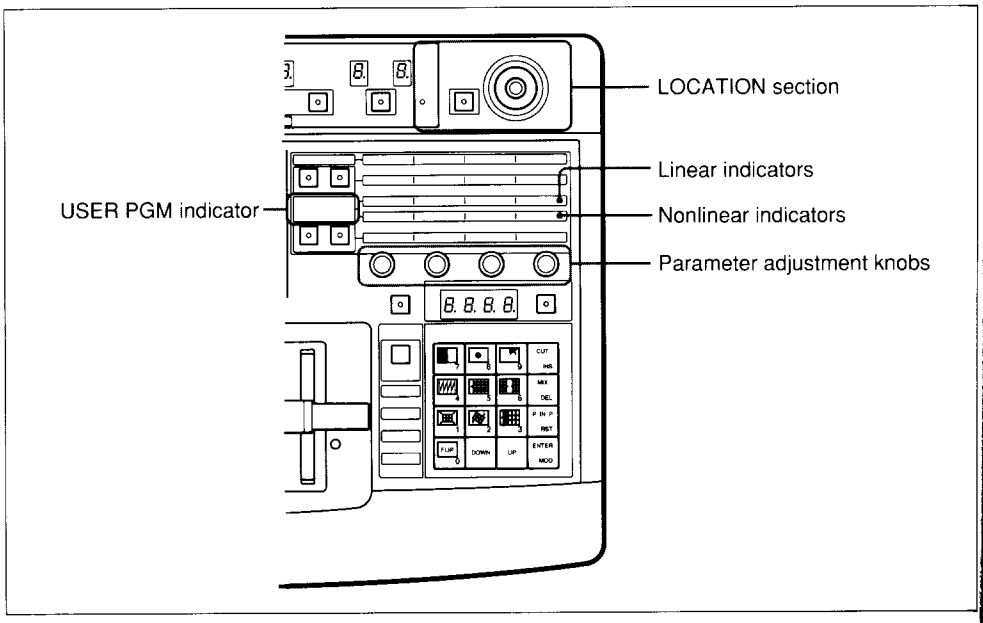

Creating an animation effect

In normal order (REVERSE button not lit), animation effects also execute from key frame 4 to key frame 1.

## Setting user program effect parameters

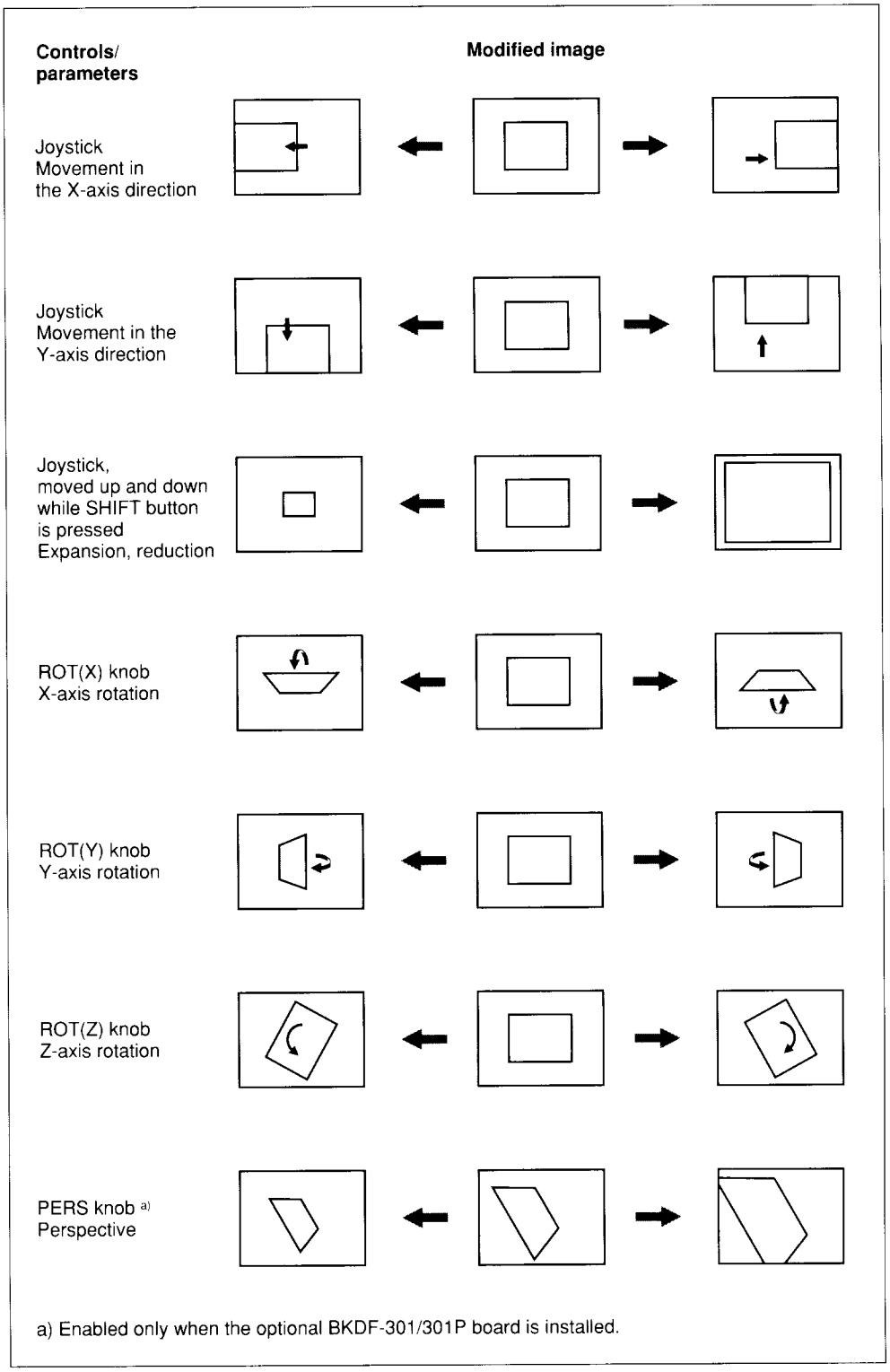
You can use the controls in the LOCATION and EFFECTS CONTROL section to set the parameters listed on pages 5-7 and 5-8.

- When you enter a user program effect number in the linear effect range, the USER PGM indicator lights, and the ROT(X), ROT(Y), ROT(Z), and PERS indicators in the linear row light.
  However, the PERS indicator lights only if you have installed the optional BKDF-301/301P board.
- When you enter a user program effect number in the nonlinear effect range, the USER PGM indicator lights, and the OFFSET, FORM, ROT(Z), and ANGLE indicators in the nonlinear row light.




Setting user program effect parameters

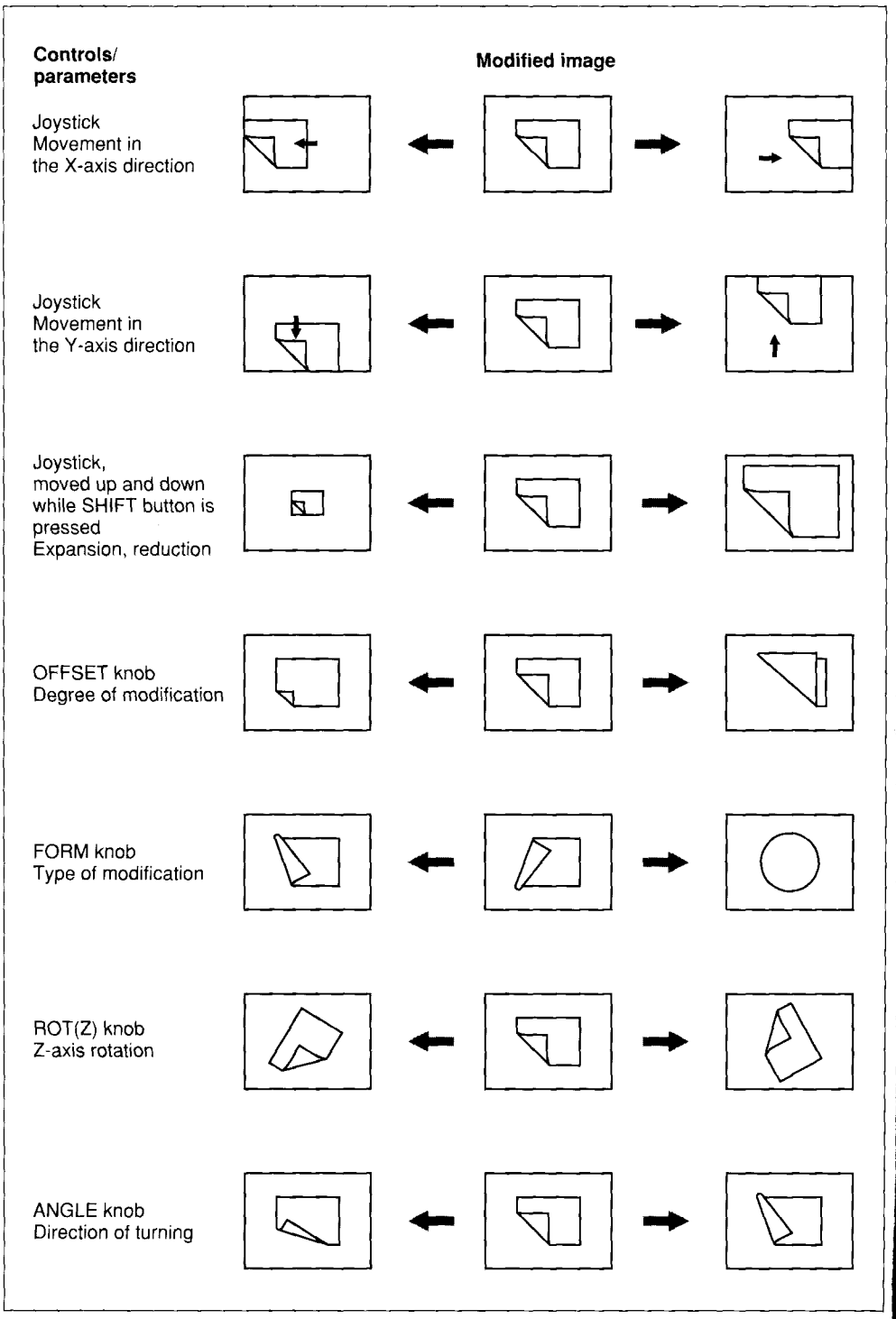
## Linear effects: 9000 to 9009 and 9100 to 9109


Controls/ parameters
Modified image
Joystick Movement in the X-axis direction
Joystick Movement in the Y-axis direction
Joystick, moved up and down while SHIFT button is pressed Expansion, reduction
ROT(X) knob X-axis rotation
ROT(Y) knob Y-axis rotation
ROT(Z) knob Z-axis rotation
PERS knob a) Perspective
a) Enabled only when the optional BKDF-301/301P board is installed.

Linear effect parameters

### Nonlinear effects: 9200 to 9209 and 9300 to 9309

To use nonlinear effects, you must install the optional BKDF-301/301P board.


Controls/ parameters
Modified image
Joystick Movement in the X-axis direction
Joystick Movement in the Y-axis direction
Joystick, moved up and down while SHIFT button is pressed Expansion, reduction
OFFSET knob Degree of modification
FORM knob Type of modification
ROT(Z) knob Z-axis rotation
ANGLE knob Direction of turning

Nonlinear effect parameters

## Displaying parameter values

In user program edit mode (EDIT button lit), press one of the numeric buttons in the keypad section. The current value of the corresponding parameter appears in the PATTERN NUMBER display window. You can adjust the value precisely by comparing the displayed value to the values shown in the table below.

Parameter display values

| Parameter | Function | Numeric button | Adjustable range | Default value |
|---|---|---|---|---|
| LOCATION(X) | Movement in the X-axis direction | 7 | –5.33 to +5.33 a) | 0.00 |
| LOCATION(Y) | Movement in the Y-axis direction | 8 | –5.98 to +6.00 b) | 0.00 |
| LOCATION(Z) | Expansion, reduction | 9 | 0.00 to 1.99 | 1.00 |
| ROT(X) | X-axis rotation | 1 | –4.00 to +3.99 c) | 0.00 |
| ROT(Y) | Y-axis rotation | 2 | –4.00 to +3.99 c) | 0.00 |
| ROT(Z) | Z-axis rotation | 3 | –4.00 to +3.99 c) | 0.00 |
| PERS | Perspective | 4 | 0.50 to 2.00 | 1.00 |
| OFFSET | Degree of modification | 1 | 0.00 to 1.00 | 0.00 |
| FORM | Type of modification | 2 | 0 to 7 d) | 0 |
| ROT(Z) | Z-axis rotation | 3 | –4.00 to +3.99 c) | 0.00 |
| ANGLE | Direction of turning | 4 | –0.63 to +0.63 c) | 0.13 |

a) A value of 4.00 means the full width of the screen.
b) A value of 3.00 means the full height of the screen.
c) A value of 1.00 means 360°.
d) The following effects are assigned to numbers FORM 0 through 7. Note that the ANGLE parameter is disabled if you select FORM 7.

| | |
|---|---|
| 0 | Page turn (radius: small) |
| 1 | Page turn (radius: medium) |
| 2 | Page turn (radius: large) |
| 3 | Page roll (radius: small) |
| 4 | Page roll (radius: medium) |
| 5 | Page roll (radius: large) |
| 6 | Page roll (reverse roll) |
| 7 | Sphere |

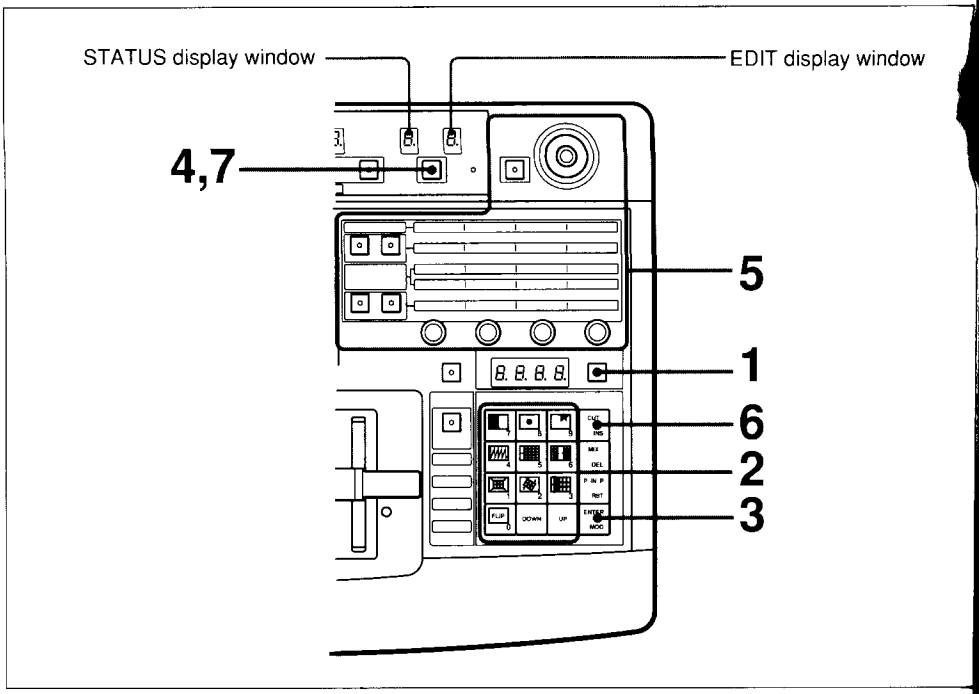
## To restore default parameter values (reset)

- To restore all parameters to their default values, press the P IN P/RST button. The default parameters are for an unmodified picture occupying the whole screen.
- To restore a specific parameter, refer to the above table "Parameter display values", and press the P IN P/RST button while holding down the numeric button corresponding to the parameter. For example, press P IN P/RST and 7 to restore the default LOCATION(X) parameter.
- To restore all of the LOCATION(X),(Y),(Z) parameters, press the LOCATION button so that it goes out.
  Press the LOCATION button again, turning it on, to set a new LOCATION(X),(Y),(Z) parameter.

# Creating New User Program Effects

## Operation

Proceed as follows to create new user program effects.




Creating new user program effects

**1** Press the SET button.

**2** Using the numeric buttons, enter a user program effect pattern number.

The number appears in the PATTERN NUMBER display window.
If the number is not a user program effect number, a warning tone will alert you in step **4** of this procedure.

Types of user program effects

| Type of effect | | Pattern numbers |
|---|---|---|
| Linear | Transition | 9000 to 9009 |
| | Animation | 9100 to 9109 |
| Nonlinear [a)] | Transition | 9200 to 9209 |
| | Animation | 9300 to 9309 |

a) You need to install the optional BKDF-301/301P board to use nonlinear effects.

**3** Press the ENTER button.

The STATUS display window shows "1", the number of key frames in the effect. If it shows any number other than "1", several key frames have already been registered for this user program effect. In this case, do one of the following.

- **To delete the user program effect and start over:** Press the EDIT button, turning it on, and perform step **2** in the procedure in "Deleting a specific user program effect" *(page 5-19)*. Then proceed to step **5** in this procedure.
- **To edit the user program effect without erasing it:** Press the EDIT button, turning it on, and execute one of the procedures (change, add, copy, or delete) in "Editing User Program Effects" *(page 5-12)*.

**4** Press the EDIT button.

The button lights, and the unit enters user program edit mode. The video signal (key frame 1) selected with the FOREGROUND bus buttons appears on the monitor screen. The picture fills the whole screen. This is because, when you create a new user program effect, key frame 1 is assigned the default parameters not to change the picture in any way.
In the EFFECTS CONTROL section, the USER PGM indicator lights. To its right, either of the upper row and lower row indicators light, depending on the pattern number entered in step **2**.

**Note**

The lower row indicators do not light if you have not installed the optional BKDF-301/301P board.

- **Linear pattern numbers (9000 to 9009, 9100 to 9109):** The ROT(X), ROT(Y), ROT(Z), and PERS indicators light. However, the PERS indicator does not light if you have not installed the optional BKDF-301/301P board.
- **Nonlinear pattern numbers (9200 to 9209, 9300 to 9309):** The OFFSET, FORM, ROT(Z), and ANGLE indicators light.

**5** Using the controls in the LOCATION and EFFECTS CONTROL sections, prepare an effect for key frame 2.

*When creating a transition effect, see "Notes on creating transition-type user program effects" at the end of this procedure.*

**6** When you are finished setting the parameters, press the CUT/INS button.

The parameters set in step **5** are registered for key frame 2. The key frame count in the STATUS display window and EDIT display window changes to 2. However, if you are creating an animation effect, you can press the ENTER button instead of the CUT/INS button. In this case, the parameters set in step **5** are registered for key frame 1 (that is, the parameters for key frame 1 are changed), and the key frame count in the STATUS display window remains unchanged. This is possible becouse an animation effect does not necessarily require its key frame 1 to be assigned the default parameters.

*(Continued)*

Repeat steps **5** and **6** until you have registered the required number of key frames (maximum 8).
The number of key frames registered will appear in the STATUS display window.

**7** After registering the last key frame, press the EDIT button again.

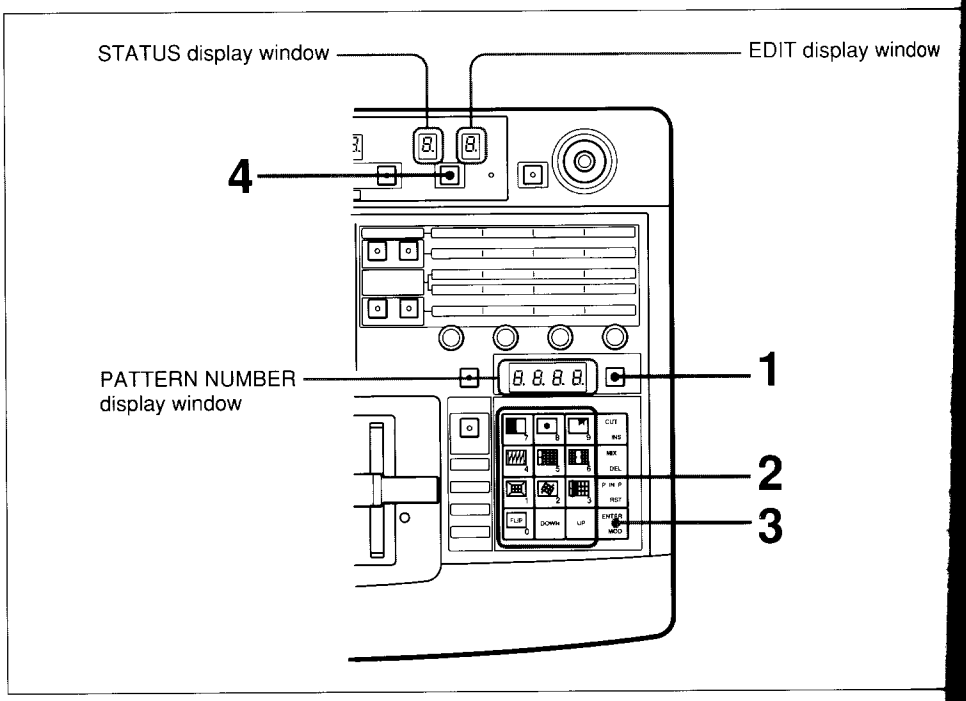
The button goes out. The newly created user program effect is ready to be executed.

### Notes on creating transition-type user program effects

- Leave key frame 1 unmodified and set to the whole screen. (When a new user program effect is created, its key frame 1 is assigned the default parameters for an unmodified full-screen picture.)
- For the last key frame, select parameters that make the foreground picture completely disappear. (Set its size to 0, or move it off the screen.) This ensures smooth transitions in your effect.
- You cannot register different PERS parameters for different key frames in linear effects, or different FORM parameters for different key frames in nonlinear effects. The PERS or FORM parameter registered for the last key frame is used for all key frames of the effect.

# Editing User Program Effects

After creating a user program effect, you can change its parameters, or add, delete, or copy key frames.




Editing user program effects

## Recalling a user program effect

Proceed as follows to recall a user program effect.

**1** Press the SET button.

**2** Use the numeric buttons in the keypad section to enter the number of the user program effect you want to edit.

The number appears in the PATTERN NUMBER display window.

**3** Press the ENTER button.

The STATUS display window shows the number of key frames registered in the designated user program effect.

**4** Press the EDIT button.

The button lights, and the picture specified in step **2** (selected with the FOREGROUND bus button) appears on the monitor screen.
The STATUS display window shows the number of the key frames in the designated user program effect.

## Changing the key frame parameters

After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **8** below.

**5** Press the UP and DOWN buttons in the keypad section until the number of the key frame you want to edit appears in the EDIT display window.

**6** Change the parameters using the controls in the LOCATION and EFFECTS CONTROL sections.

*For details, see "Setting user program effect parameters" (page 5-6).*

**7** Press the ENTER button.

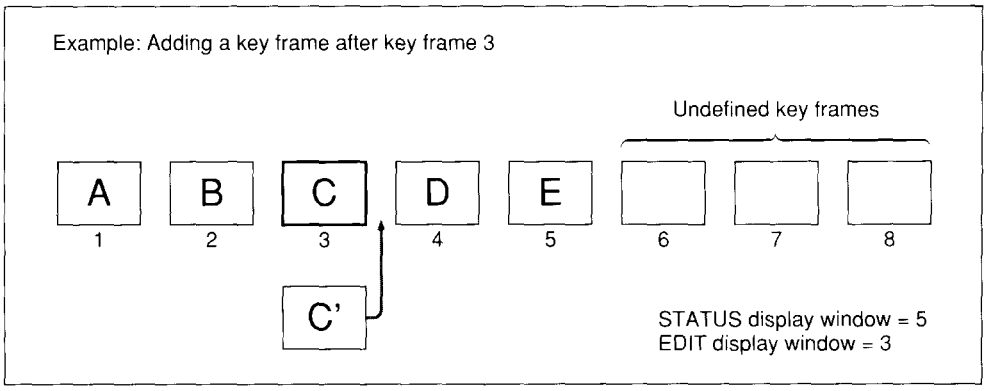
The new parameters are registered.

Repeat steps **5**, **6**, and **7** to change parameters for other key frames.

**8** When finished making changes, press the EDIT button.

The button goes out. The changed user program effect is registered again.

## Adding a key frame




Adding a key frame (before addition)

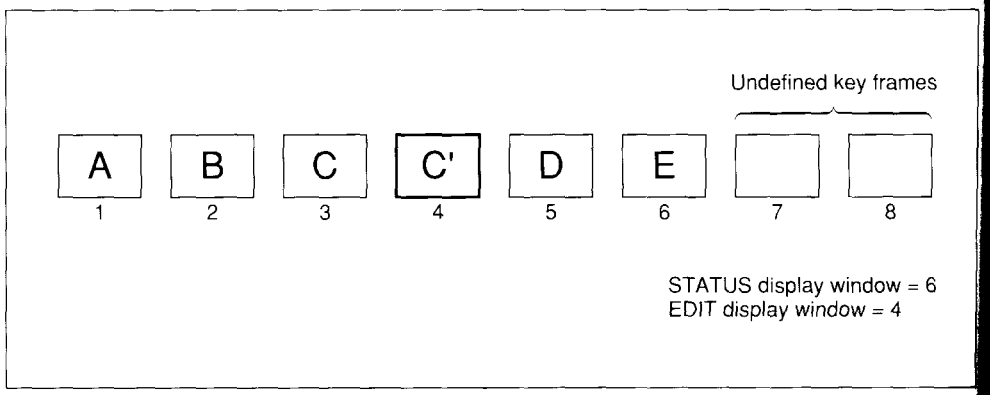
After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **8** below.

**5** Press the UP and DOWN buttons in the keypad section until the number ("3" in the above example) of the key frame that will precede the additional frame appears in the EDIT display window.

**6** Set the parameters for the additional frame using the controls in the LOCATION and EFFECTS CONTROL sections.

**7** Press the CUT/INS button.

A key frame using the parameters set in step **6** is inserted after the key frame specified in step **5**, and the numbers in the STATUS and EDIT display windows are incremented by 1.



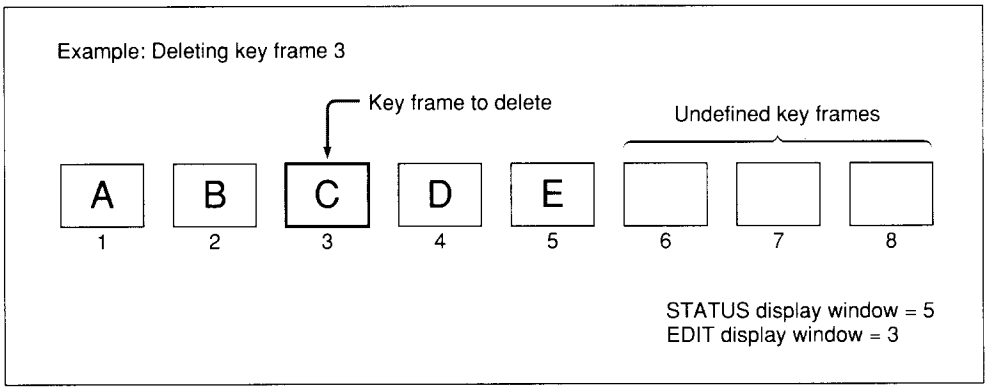

Adding a key frame (after addition)

Repeat steps **5**, **6**, and **7** as required to add more key frames.

**8** When finished adding key frames, press the EDIT button.

The button goes out. The user program effect with the additional key frames is registered.

## Deleting a key frame



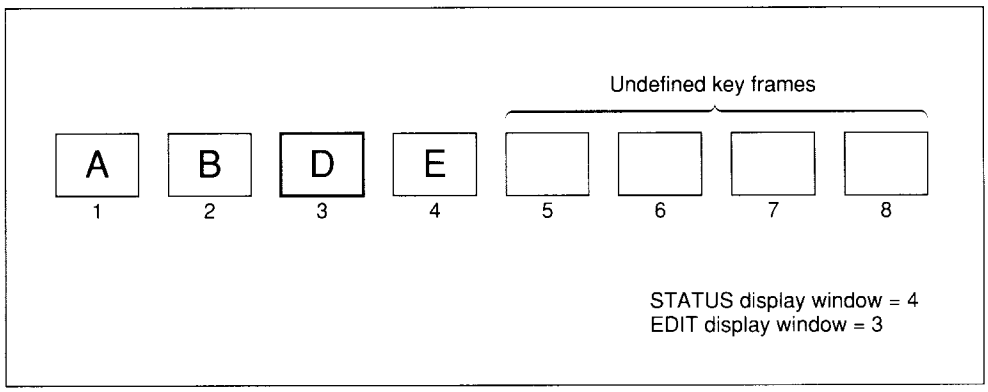

Deleting a key frame (before deletion)

After performing steps **1** to **4** in "Recalling a user program effect", continue by performing steps **5** through **7** below.

**5** Press the UP and DOWN buttons in the keypad section until the number ("3" in the above example) of the key frame that you want to delete appears in the EDIT display window.

**6** Press the MIX/DEL button.

To prevent unintended deletions, this button does not operate immediately; keep it pressed for at least 0.5 seconds.
After 0.5 seconds, a buzzer sounds and the key frame specified in step **5** is deleted. The number in the STATUS display window is decremented by 1.




Deleting a key frame (after deletion)

Repeat steps **5** and **6** as required to delete more unneeded key frames.

**7** When finished deleting key frames, press the EDIT button.

The button goes out. The user program effect without the unneeded key frames is ready to be executed.

## Assigning key frame data to a numeric button (temporary assignment function)

While editing user program effects, you can temporarily assign key frame data to keypad numeric buttons. This makes it easy to recall the data for use in changing or adding key frames. You can register 10 sets of data each for linear and nonlinear effects, for a total of 20 sets of key frame data.

### To assign key frame data

Proceed as follows.

**1** If the EDIT button is not lit, press it.

The button lights and the unit enters user program edit mode.

**2** Set the key frame data.
Use the controls in the EFFECTS CONTROL and LOCATION sections to set parameters for the user program effect you are editing.

*For details, see "Setting user program effect parameters" (page 5-6).*

**3** Press the ENTER button while holding down one of the keypad numeric buttons (0 to 9).

The numeric button lights, and the data set in step **2** is assigned to the button.

### To recall key frame data

Proceed as follows.

**1** If the EDIT key is not lit, press it.

The button lights and the unit enters user program edit mode.

**2** Press the ENTER button while holding down one of the lit keypad section numeric buttons (0 to 9).

The lit numeric button goes out, and the data stored in that button is recalled.

**Notes**

- The data is cleared when it is recalled. If you want to use it again, assign it again.
- Data for linear effects cannot be assigned to nonlinear effects, and vice versa.
- Key frame data assigned to the numeric buttons is lost when the DFS-300/300P is powered off.

## Copying a key frame

You can use the temporary assignment function to copy data from one key frame to another.
Proceed as follows.

**1** Recall the user program effect you want to copy from, and press the EDIT button, turning it on.

*For details see "Recalling a user program effect" (page 5-13).*

**2** Press the UP or DOWN button in the keypad section until the number of the key frame you want to copy from appears in the EDIT display window.

**3** Press the ENTER button while holding down a numeric button (0 to 9).

The numeric button lights. The data of the key frame data selected in step **2** is assigned to that button.

**4** Press the EDIT button again.

The button goes out, and the unit leaves user program edit mode.

**5** Recall the user program effect you want to copy to, and press the EDIT button, turning it on.

*For details see "Recalling a user program effect" (page 5-13).*

**Note**

The copy destination must be an effect of the same type (linear or nonlinear) as the copy source.

**6** Press the UP or DOWN button in the keypad section until the number of the key frame you want to copy to appear in the EDIT display window.

**7** Press the ENTER button while holding down the numeric button selected in step **3**.

The numeric button goes out, and the key frame data is recalled.

**8** Press the ENTER button again.

The key frame data is copied to the copy destination.

**9** Press the EDIT button.

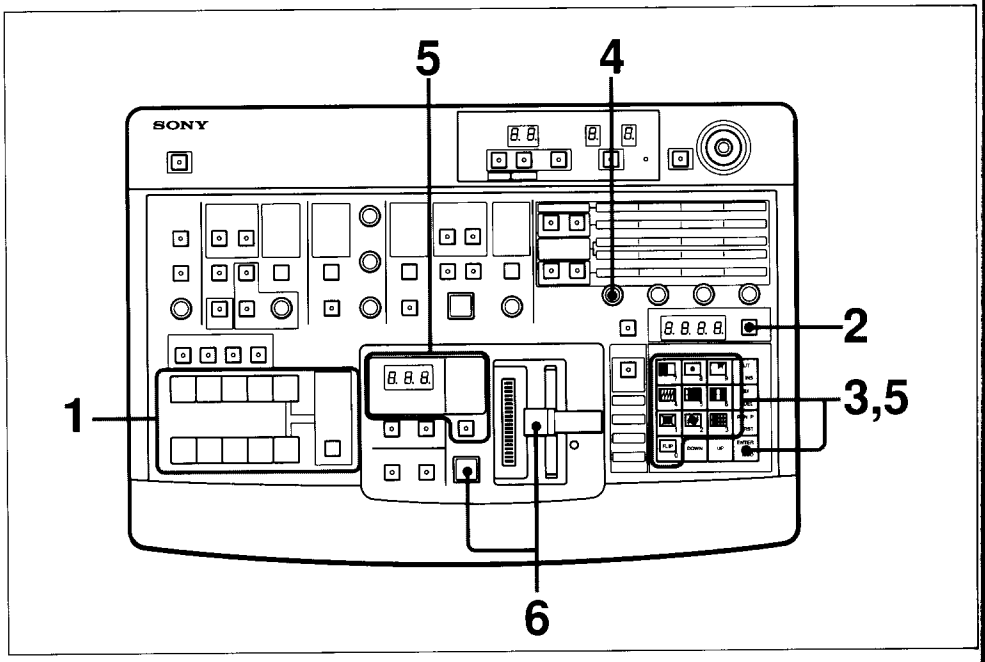
The button goes out and the unit leaves user program edit mode.

# Executing User Program Effects

User program effects are executed in the same way as built-in effects, by entering the pattern number.
Transitions between the key frames in user program effects are smooth because spline interpolation is used to generate intermediate effects. You can control the smoothness of transitions by adjusting the spline curve.

Proceed as follows to execute user program effects. Except for step **4**, the procedure is the same as the procedure used to execute built-in effects from pattern number entry mode.

*For more information about executing built-in effects, see "Executing the Effect" (page 4-33).*




Executing user program effects

**1** Select the background and foreground pictures.

**2** Press the SET button.

**3** In the keypad section, enter the number of the user program effect you want to execute with the numeric buttons and press the ENTER button.

The STATUS display window shows the number of key frames in the effect.

**4** If necessary, rotate the F1 parameter adjustment knob in the EFFECTS CONTROL section to adjust the smoothness of the transition.
Rotate the knob counterclockwise to increase the smoothness.

**5** Set the duration and direction of the transition as required.

**6** Execute the effect with the fader lever or AUTO TRANS button.

# Deleting User Program Effects

## Deleting a specific user program effect

Proceed as follows.

**1** Recall the user program effect you want to delete, and press the EDIT button, turning it on.

*For details, see "Recalling a user program effect" (page 5-13).*

**2** In the keypad section, press the MIX/DEL button while holding down the P IN P/RST button.

To prevent unintended deletions, the MIX/DEL does not operate immediately; hold it down for at least 0.5 seconds.
After 0.5 seconds, a buzzer sounds and all key frames in the user program effect are deleted. The EDIT display window and STATUS display window each show "1".

## Deleting all user program effects (initialization)

Proceed as follows.

**1** Recall any user program effect, and press the EDIT button, turning it on.

*For details, see "Recalling a user program effect" (page 5-13).*

**2** While holding down the keypad P IN P/RST and MIX/DEL buttons, press the EDIT button.

A buzzer sounds and all registered user program effects are deleted.

# Snapshots

This unit's snapshot functions allow you to save up to 100 control panel states, and restore the control panel to any of those states whenever necessary.
Snapshots of the control panel are saved in internal snapshot registers, numbered from 0 to 99. When a snapshot is recalled, all of the settings in the following list are copied from the snapshot register back to the control panel.

Settings saved in control panel snapshots

| Operational section | Settings |
|---|---|
| Primary crosspoint bus | Signal selected by the FOREGROUND bus buttons<br>Signal selected by the BACKGROUND bus buttons<br>Signal selected by the INT VIDEO SELECT button |
| EFFECTS TRANSITION | Transition duration<br>Transition direction (setting of the REVERSE button)<br>Setting of the FREEZE button |
| Keypad | Direct pattern assignments |
| TITLE | All settings |
| MATTES | Color settings for all color mattes |
| DOWNSTREAM KEYER | All settings |
| EFFECTS CONTROL | Parameters of user-modifiable effects<br>Smoothness setting (F1 setting) for user program effects |
| EDGE | All settings |
| LOCATION | All settings |

**Note**

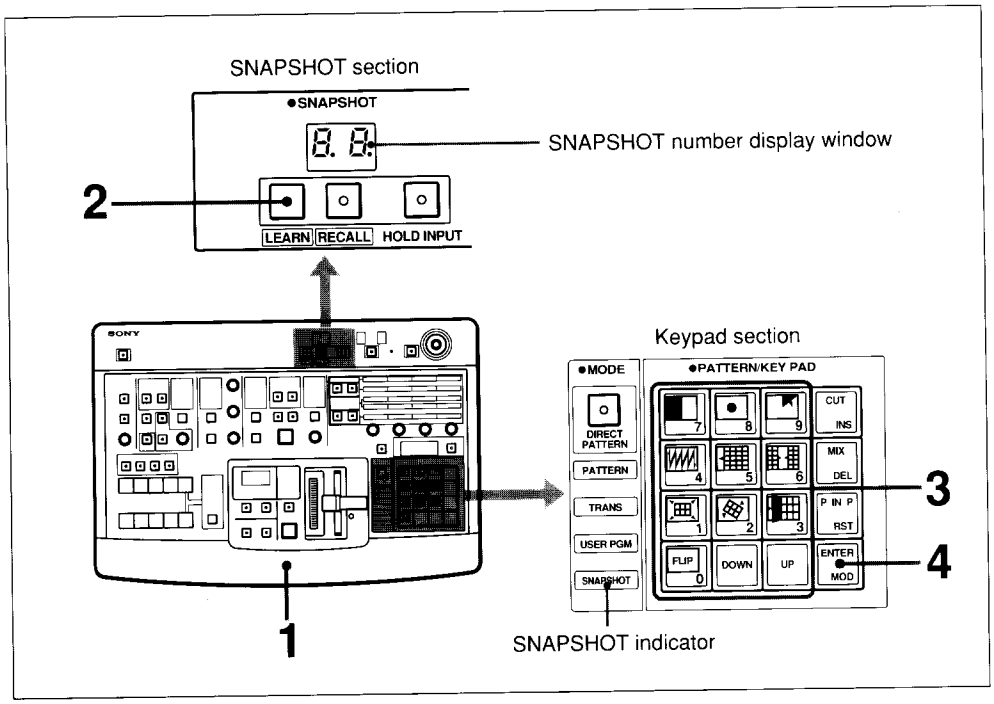
Color corrector settings and fader lever positions are not saved in snapshots.

# Registering Snapshots — Learn

Proceed as follows to register a snapshot.

**Note**

The default snapshots are saved at the factory in each of the 100 snapshot registers. The following procedure allows you to overwrite the data in any of the registers.




Registering snapshots

**1** Set the buttons and controls on the control panel so that it is configured to the state you want to save.

**2** Press the LEARN button.

The button and the SNAPSHOT indicator light.
Dots light next to the digits in the SNAPSHOT number display window to show that the keypad section is in snapshot number entry mode.

**3** Using the numeric buttons, enter a snapshot number.
You can increment or decrement the number with the UP and DOWN buttons.

**4** Press the ENTER button.

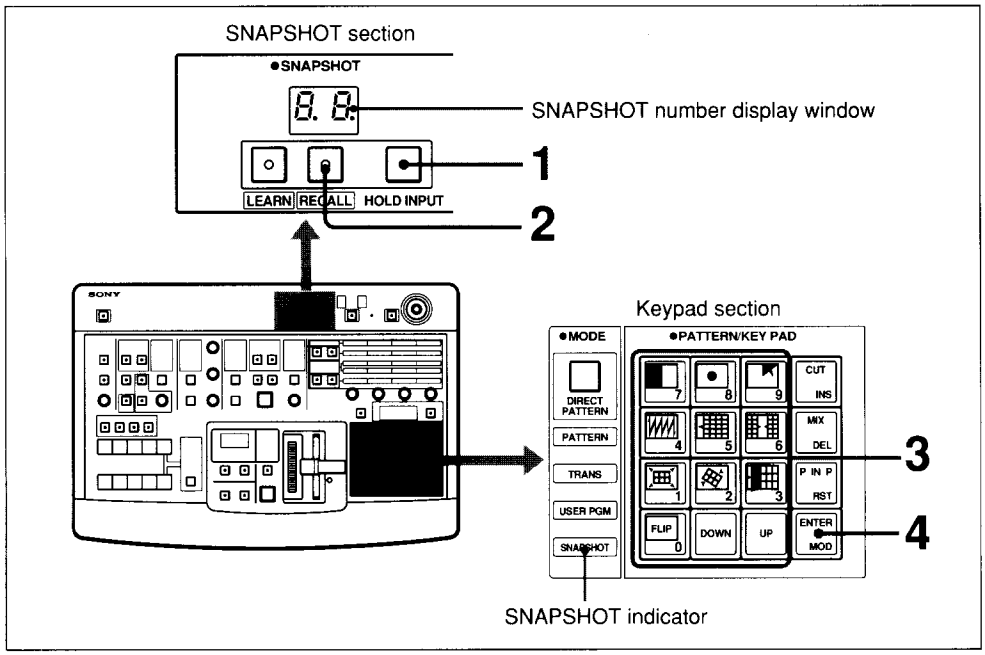
The LEARN button and the number in the SNAPSHOT number display window flash three times, and the current control panels settings are saved in a snapshot. The LEARN button goes out after all of the data is saved.

### To cancel the snapshot saving operation

In step **4**, press the LEARN button instead of the ENTER button. The LEARN button goes out and the operation is canceled.

# Recalling Snapshots — Recall

Proceed as follows to recall a snapshot.




Recalling snapshots

**1** If you do not want to change the current settings in the primary crosspoint bus section, press the HOLD INPUT button.

The button lights.

**2** Press the RECALL button.

The button and the SNAPSHOT indicator light.
Dots light next to the digits in the SNAPSHOT number display window to show that the keypad section is in snapshot number entry mode.

**3** Using the numeric buttons, enter a snapshot number.
You can increment or decrement the number with the UP and DOWN buttons.

**4** Press the ENTER button.

Snapshot data is copied from the designated snapshot register to the control panel.
However, if the HOLD INPUT button is lit, the primary crosspoint bus settings remain unchanged.
The RECALL button goes out after all of the data has been copied.

### To cancel the recall operation

In step **4**, press the RECALL button instead of the ENTER button. The RECALL button goes out and the operation is canceled.

## Viewing the snapshot demonstration

To check the contents of the snapshot registers, you can view a demonstration of snapshots 0 through 99.
The default demonstration is identical to the unit's built-in demonstration of special effects *(see page 3-9)*. But snapshots and built-in special effects are stored in different locations. Even after changing the contents of the snapshot registers, you can still view the special effects demonstration.

### To start the demonstration

Press the AUTO TRANS button in the EFFECTS TRANSITION section while holding down PATTERN/KEYPAD buttons [3] and [7]. All of the currently registered snapshots are executed repeatedly, beginning with the currently designated one. During the demonstration, the buttons in the keypad section light in counterclockwise order.

- The setting of the HOLD INPUT button is effective also for the snapshot demonstration.
- During the demonstration, all control panel buttons are disabled except the AUTO TRANS button.

### To end the demonstration

Press the AUTO TRANS button.

## Initializing snapshot data

You can initialize the snapshot registers to the factory default snapshots.
Proceed as follows.

**1** If the EDIT button in the USER PROGRAM section is lit, press it so that it goes out.

**2** Press the LEARN button.

**3** While holding down the P IN P/RST and DOWN buttons in the keypad section, press the LEARN button again.

A buzzer sounds, and all snapshots are initialized to the factory defaults.

# Chapter 6
# Control From Editing Control Units

This chapter explains preparations and settings needed to control the DFS-300/300P from your editing control unit.

**Control From the PVE-500 ..... 6-2**
Cut Editing ..... 6-3
A-Roll Editing ..... 6-4
A/B Roll Editing ..... 6-6
**Control From the RM-450 ..... 6-8**
**Control From the BVE-600 ..... 6-11**
A-Roll Editing ..... 6-12
A/B Roll Editing ..... 6-13
**Control From the BVE-900/2000 Series ..... 6-14**
**Control Using GPI Signals ..... 6-17**
A-Roll Editing ..... 6-18
A/B Roll Editing ..... 6-19

# Control From the PVE-500

You can combine the DFS-300/300P with the PVE-500 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder, and A/B roll editing using two players and one recorder.
The PVE-500 controls the DFS-300/300P using PVE-500 control signals and GPI signals.

### Control using PVE-500 control signals

You can control the following DFS-300/300P functions using 9-pin serial control signals from the PVE-500. Input these signals to the EDITOR connector on the DFS-300/300P.

- Background picture (FROM source) and foreground picture (TO source) selection
- Transition duration selection
- Automatic transition execution
- Automatic snapshot (automatic registration and recall of DFS-300/300P snapshots when you register PVE-500 edit data)

*For more information about controlling these functions, refer to the PVE-500 Operating Instructions.*

### Downstream key control using GPI signals

You can use GPI signals from the PVE-500 to turn the DFS-300/300P downstream key function on and off at the falling edges of pulses. Input the GPI signals to the T2 connector on the DFS-300/300P.

*For details of GPI signal timing, see page 6-20.*

### Enabling and disabling control by the editor

To enable or disable control of the DFS-300/300P by 9-pin serial control signals and GPI signals, press the EDITOR/GPI ENABLE button on the control panel so that it lights (enable control) or goes out (disable control).

- **To enable or disable control by 9-pin serial control signals,** press the EDITOR/GPI ENABLE button alone.
- **To enable or disable control by GPI signals,** press the EDITOR/GPI ENABLE button while pressing the SHIFT button.
  You can check whether GPI control is enabled by pressing the SHIFT button alone. The EDITOR/GPI ENABLE button lights if GPI control is enabled.

Control by both editor control signals and GPI signals is enabled when you power the DFS-300/300P on.

## Preparations

Make the following preparations to control the DFS-300/300P from the PVE-500.

### On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.

  *For more information about the editing control unit select switch, see page 2-22.*

- Check the EDITOR/GPI ENABLE button on the control panel to be sure that control by editor control signals or GPI signals is enabled.

  *For details, see "Enabling and disabling control by the editor" on the previous page.*

- If you want to carry out A-roll editing, connect the output of the recorder VCR to the VIDEO INPUTS 3 or VIDEO INPUTS 4 connector on the rear panel.

### On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped. If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

### On the PVE-500

Using the setup menu, make the following settings.

*For more information about using the setup menu, refer to the PVE-500 Operating Instructions.*

- Set the SWITCHER TYPE setup menu item (SEtUP-20) to "500". (The factory default setting is 500.)
- If you want to use the automatic snapshot function, set the AUTO SNAPSHOT setup menu item (SEtUP-21) to "On". (The factory default setting is OFF.)

# Cut Editing

To perform a cut edit by controlling the DFS-300/300P from the PVE-500, proceed as follows.

*For this operation, refer also to the PVE-500 Operating Instructions.*

**1** Press the A/B button on the PVE-500 to extinguish it.

**2** Select the player VCR as the FROM source.

**3** Set the IN and OUT points for the player VCR and recorder VCR, in any order.

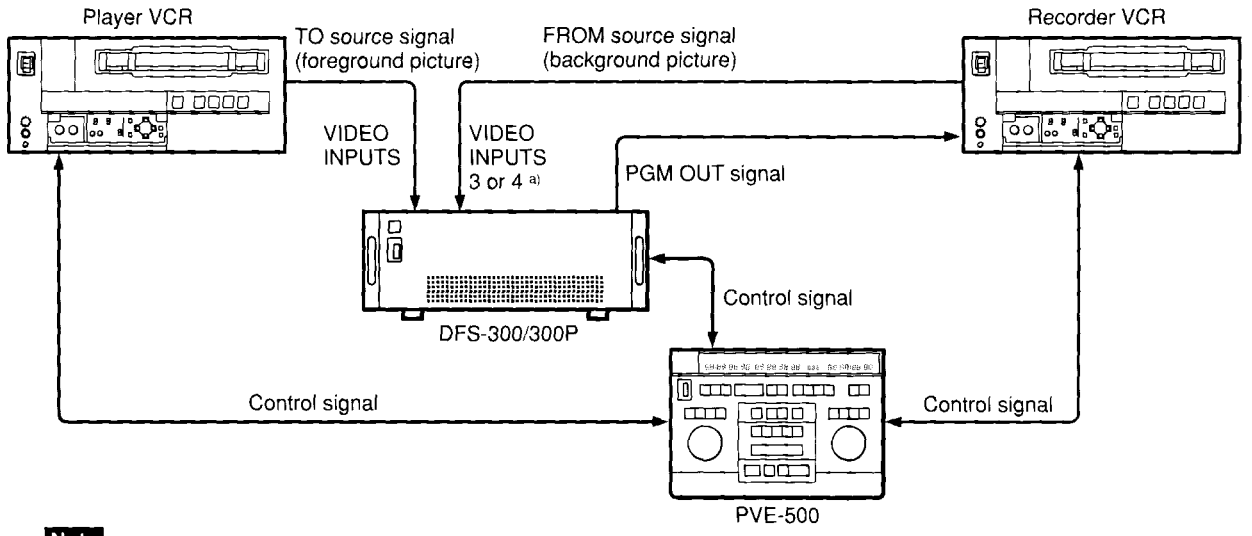
**4** Conduct a preview as required, and execute the edit.

# A-Roll Editing

## Signal flow

The flow of signals in A-roll editing is as follows.

*For more information about connections, see "A-Roll Editing System Connections" (page 7-4).*




**Note**

To improve editing accuracy, supply a reference sync signal to the PVE-500 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

a) Select input to VIDEO INPUTS 3 with AUX1 on the PVE-500, and input to VIDEO INPUTS 4 with AUX2.

Signal flow in A-roll editing

## Operation

To perform A-roll editing by controlling the DFS-300/300P from the PVE-500, proceed as follows.

*For this operation, refer also to the PVE-500 Operating Instructions.*

**1** On the PVE-500, press the A/B button so that it lights.

**2** On the PVE-500, select the FROM source and TO source.
As the FROM source, select AUX1 if you have connected the recorder VCR output to the VIDEO INPUTS 3 connector on the DFS-300/300P, or AUX2 if you have connected it to the VIDEO INPUTS 4 connector.

**3** On the PVE-500, set the FROM source duration to "0".

**4** Set the IN and OUT points for the TO source and the recorder VCR.

**Note**

Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the PVE-500 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder VCR edit points are not delayed.

**5** On the PVE-500, press the TRANS button and set the transition duration.

**6** On the DFS-300/300P, press one of the FREEZE buttons (FIELD or FRAME) to select the freeze mode for recorder video.

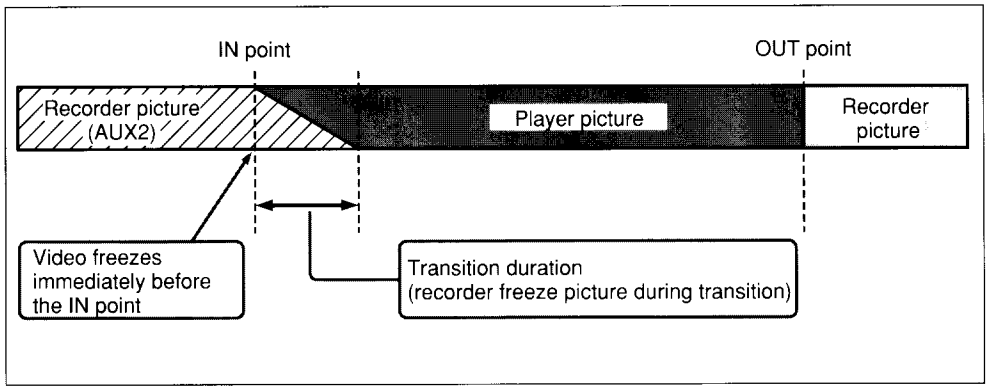
**FIELD:** When you execute the edit, the recorder video freezes 3 fields in advance of the IN point.

**FRAME:** When you execute the edit, the recorder video freezes 2 frames in advance of the IN point.

**7** On the DFS-300/300P, select the effect and make other settings as required. Note that transition durations set on the PVE-500 take priority.

**8** Conduct a preview as required and execute the edit.

The edit is recorded as shown below.

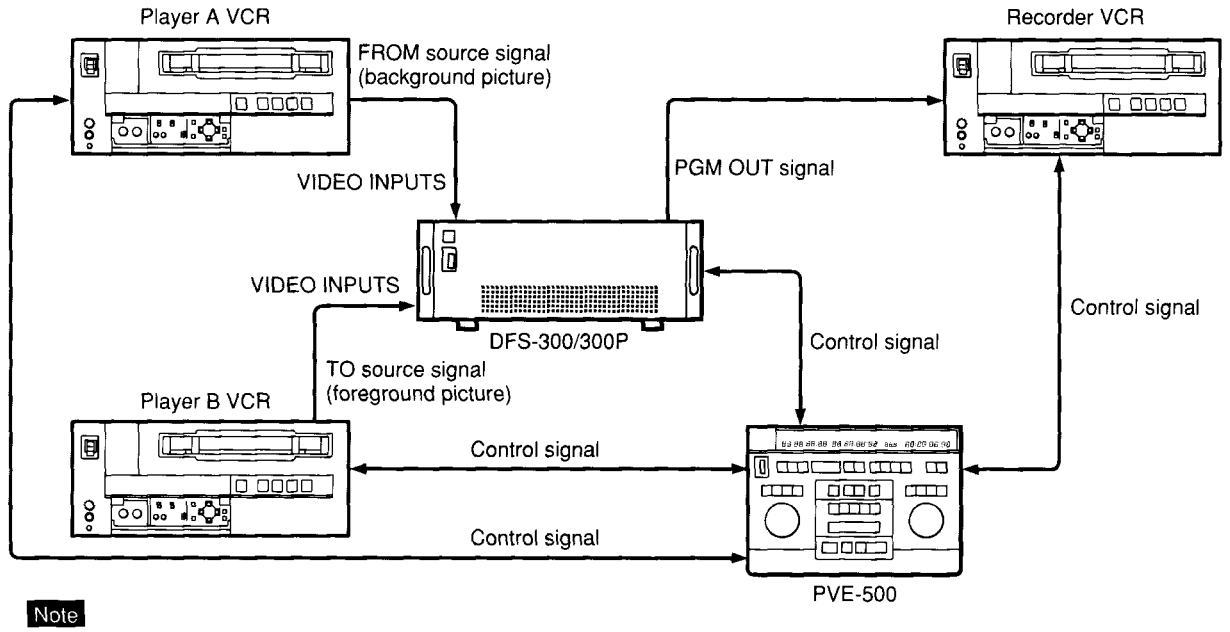


# A/B Roll Editing

## Signal flow

The flow of signals in A/B roll editing is as follows.

*For more information about connections, see "A/B Roll Editing System Connections" (page 7-5).*




**Note**

To improve editing accuracy, supply a reference sync signal to the PVE-500 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

## Operation

To perform A/B roll editing by controlling the DFS-300/300P from the PVE-500, proceed as follows.

*For this operation, refer also to the PVE-500 Operating Instructions.*

**1** On the PVE-500, press the A/B button so that it lights.

**2** On the PVE-500, select the FROM source and TO source.
The FROM source corresponds to the background on the DFS-300/300P, and the TO source corresponds to the foreground.

**3** Set the IN and OUT points for the FROM source, the TO source, and the recorder.

**Note**

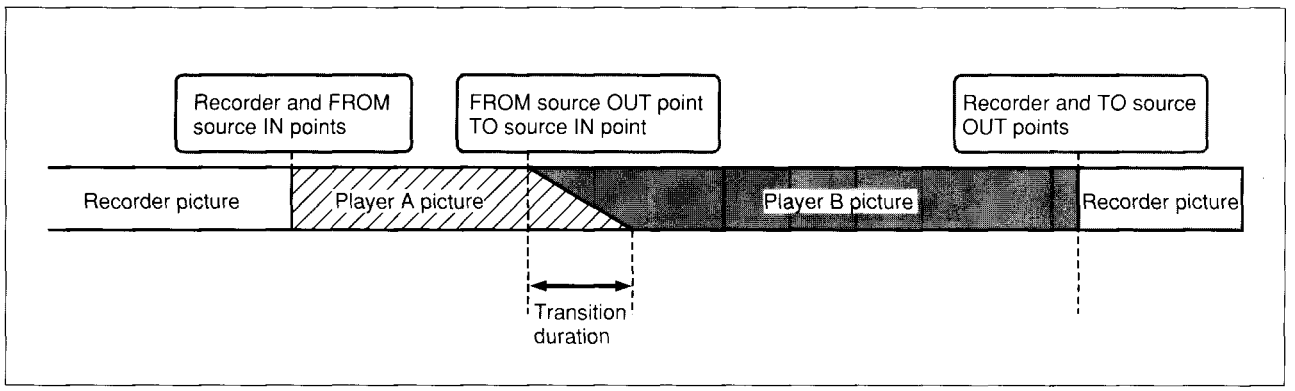
Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the PVE-500 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.

**4** On the PVE-500, press the TRANS button to light it and set the transition duration.

**5** On the DFS-300/300P, select the effect and make other settings as required. Note that transition durations set on the PVE-500 take priority.

**6** Conduct a preview as required and execute the edit.

The edit is recorded as shown below.


Recorder and FROM source IN points
FROM source OUT point TO source IN point
Recorder and TO source OUT points
Recorder picture
Player A picture
Player B picture
Recorder picture
Transition duration

# Control From the RM-450

You can combine the DFS-300/300P with the RM-450 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder. The RM-450 controls the DFS-300/300P with cue signals.

## Preparations

Make the following preparations to control the DFS-300/300P from the RM-450.

### On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "RM-450".
  If necessary, you can also adjust the RM-450 TIMING switch on the same internal board. When this switch is set to the factory default position of "8", the recorder picture freezes 3 fields in advance of the IN point. Depending on the VCRs used in your system, you may need to adjust this switch to obtain the correct timing. Conduct a preview of the edit and adjust the switch as required. After setting the switches, power the DFS-300/300P on.

  *For more information about the SY-199 switches, see page 2-22.*
- Check the EDITOR/GPI ENABLE button on the control panel to be sure that it is lit.
  (When the DFS-300/300P is powered on, the EDITOR/GPI ENABLE button lights to indicate that control by editor control signals is enabled. If the button is not lit, press it so that it lights.)
- Press one of the FREEZE buttons (FIELD or FRAME) to select the freeze timing for the recorder picture.
  (When the editing control unit select switch is set to "RM-450", the FIELD button lights automatically when the DFS-300/300P is powered on.)

### On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

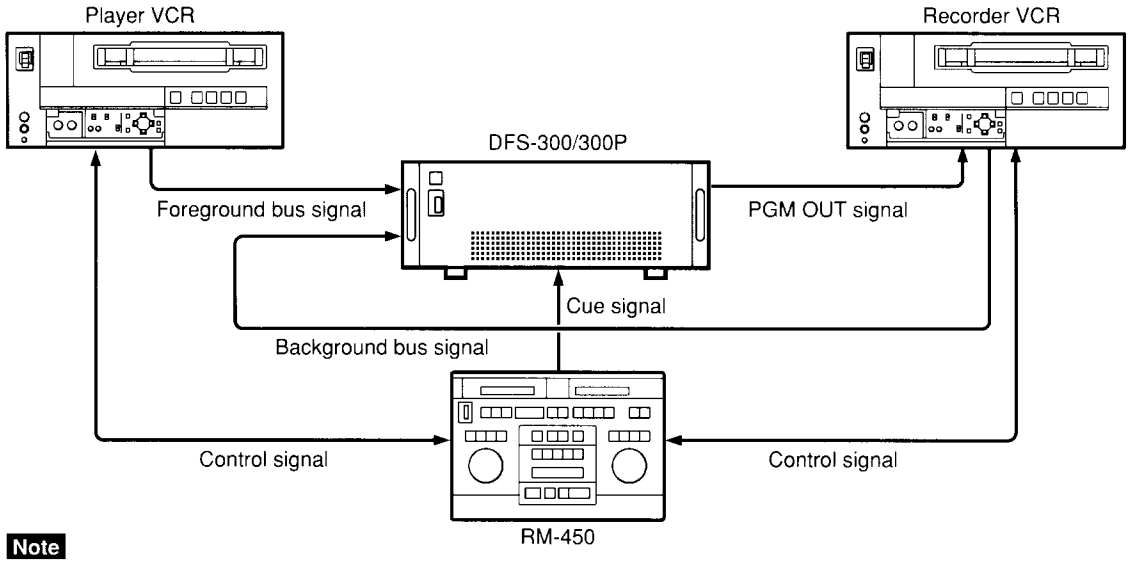
### On the RM-450

- Set the VCR preroll time to 5 seconds or 7 seconds.
- Set the RM-450 cue signal output timing to 1 second before the IN point.

## Signal flow

The flow of signals in editing with the RM-450 is as follows.

*For more information about connections, see "A-Roll Editing System Connections" (page 7-4).*



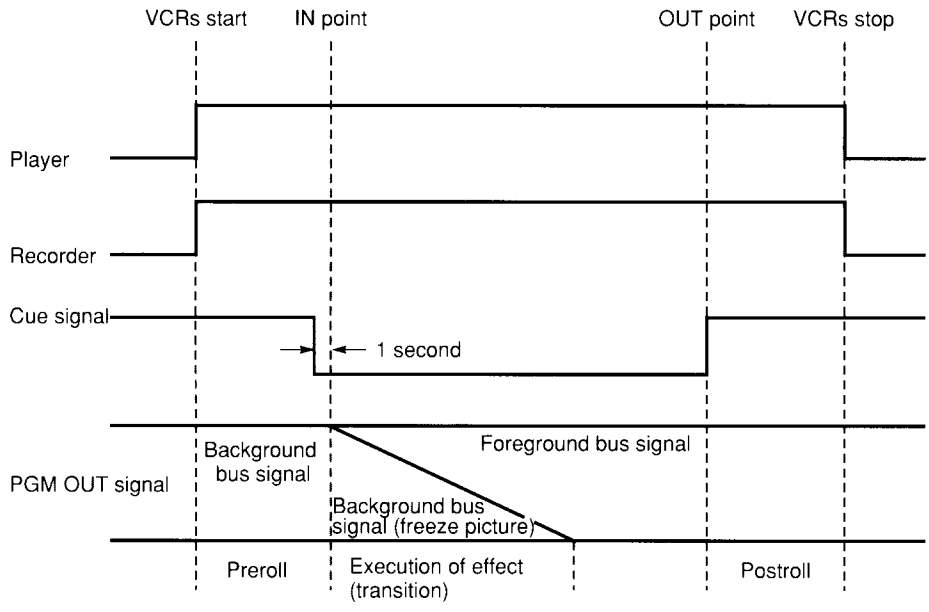

**Note**

To improve editing accuracy, supply a reference sync signal to the RM-450 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in RM-450 editing

## Timing of the cue signal

The timing of the cue signal output by the RM-450 is as follows.




Timing of the cue signal

## Operation

To perform A-roll editing by controlling the DFS-300/300P from the RM-450, proceed as follows.

*For this operation, refer also to the RM-450 Operating Instructions.*

**1** On the DFS-300/300P, select the player VCR by pressing an appropriate BACKGROUND bus button.

The player VCR picture appears on the program monitor connected to the DFS-300/300P.

**2** On the RM-450, set the player IN and OUT points while watching the program monitor.

**3** On the DFS-300/300P, select the player VCR by pressing an appropriate FOREGROUND bus button.

**4** On the DFS-300/300P, select the recorder VCR by pressing an appropriate BACKGROUND bus button.

The recorder VCR picture appears on the program monitor connected to the DFS-300/300P.

**5** On the RM-450, set the recorder IN and OUT points while watching the program monitor.

**6** On the DFS-300/300P, select an effect, set the transition, and make other settings as required. Check the effect with the fader lever or AUTO TRANS button while viewing the program monitor.

**7** On the RM-450, press the AUTO EDIT/END button.

The effect is executed. The tapes on the recorder and player VCRs run to the preroll point, 5 or 7 seconds before the IN point, and then run in playback mode. At the IN point, the background picture (the picture of the recorder VCR) freezes, the effect begins, and the recorder begins recording.

**Notes**

- To display the background picture during or after the transition, press the BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the RM-450 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.
  **Example:** If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

# Control From the BVE-600

You can combine the DFS-300/300P with the BVE-600 Editing Control Unit to carry out A-roll editing with special effects using one player and one recorder, and A/B roll editing using two players and one recorder.
The BVE-600 controls the DFS-300/300P using the GPI trigger signals T1 and T2.

*For the required input and output connections, see "A-Roll Editing System Connections" (page 7-4) and "A/B Roll Editing System Connections" (page 7-6).*

**Note**

You cannot use the built-in switcher of the BVE-600 (BKE-611/612/621/622) when you are using the DFS-300/300P.

## Preparations

Make the following preparations to control the DFS-300/300P from the BVE-600.

*For details about operation, refer to the BVE-600 Operating Instructions.*

### On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "BVE-600". Then power the DFS-300/300P on.
- Press the SHIFT button, and check to be sure that the EDITOR/GPI ENABLE button lights (it lights when control by GPI signals is enabled).
  If it does not light, keep the SHIFT button held down and press the EDITOR/GPI ENABLE button so that it does light. Control by GPI signals is enabled automatically when the DFS-300/300P is powered on.
- **If you want to carry out A-roll editing,** check to be sure that the FREEZE FIELD button on the control panel is lit. Note that you must extinguish this button when you execute a cut. (If the editing control unit select switch on the internal SY-199 board is set to "BVE-600", the FREEZE FIELD button lights automatically when you power the DFS-300/300P on.)
- **If you want to carry out A/B roll editing,** press the FREEZE FIELD button to extinguish it.

### On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

### On the BVE-600

On the rear panel, set S502 DIP switch 2 and S503 DIP switch 3 to the lower position (OFF), and power the BVE-600 on again.
All DIP switches are factory set to the upper position (ON).

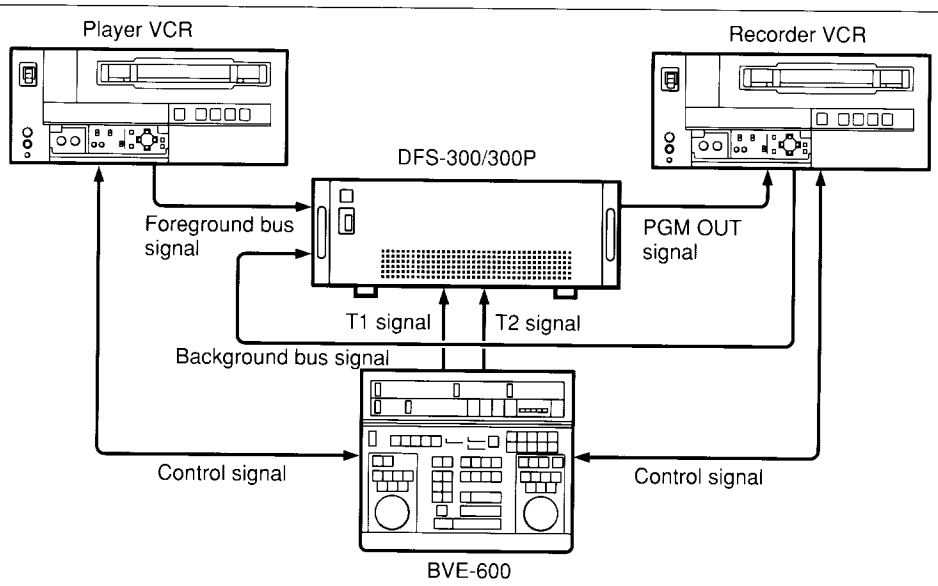
**Notes**

- To display the background picture during or after a transition, press an appropriate BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the BVE-600 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder VCR edit points are not delayed.
  **Example:** If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

# A-Roll Editing

## Signal flow

The flow of signals in A-roll editing with the BVE-600 is as follows.



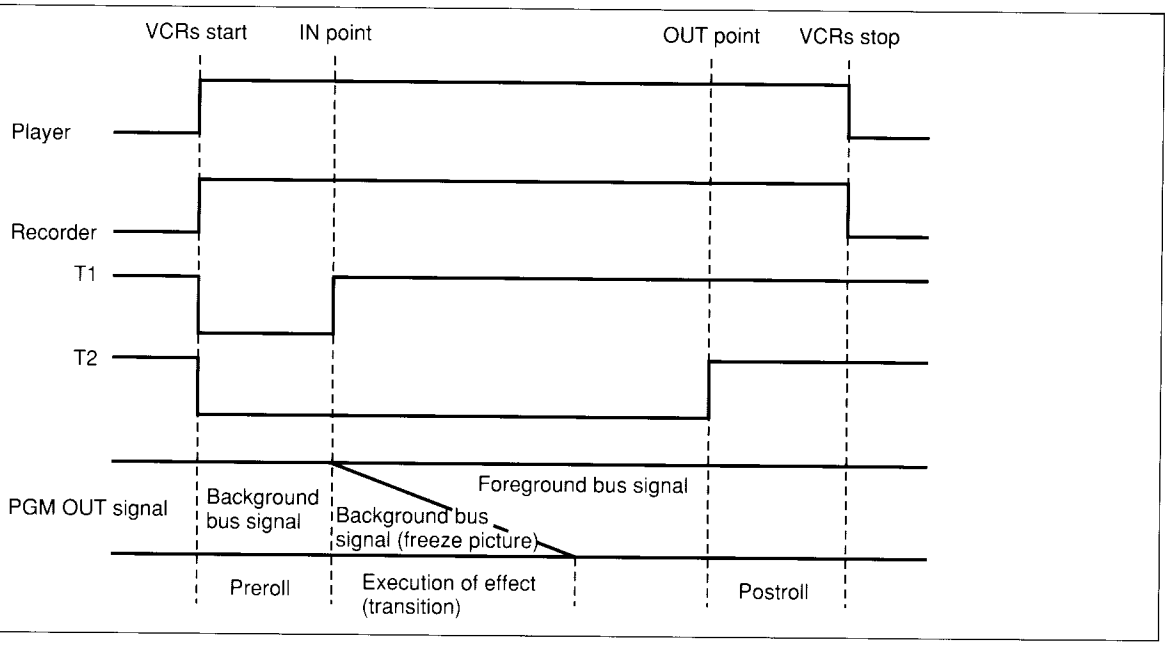

**Note**

To improve editing accuracy, supply a reference sync signal to the BVE-600 and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A-roll editing

## Timing of the trigger (T1/T2) signals

The timing of the trigger signals output by the BVE-600 is as follows.

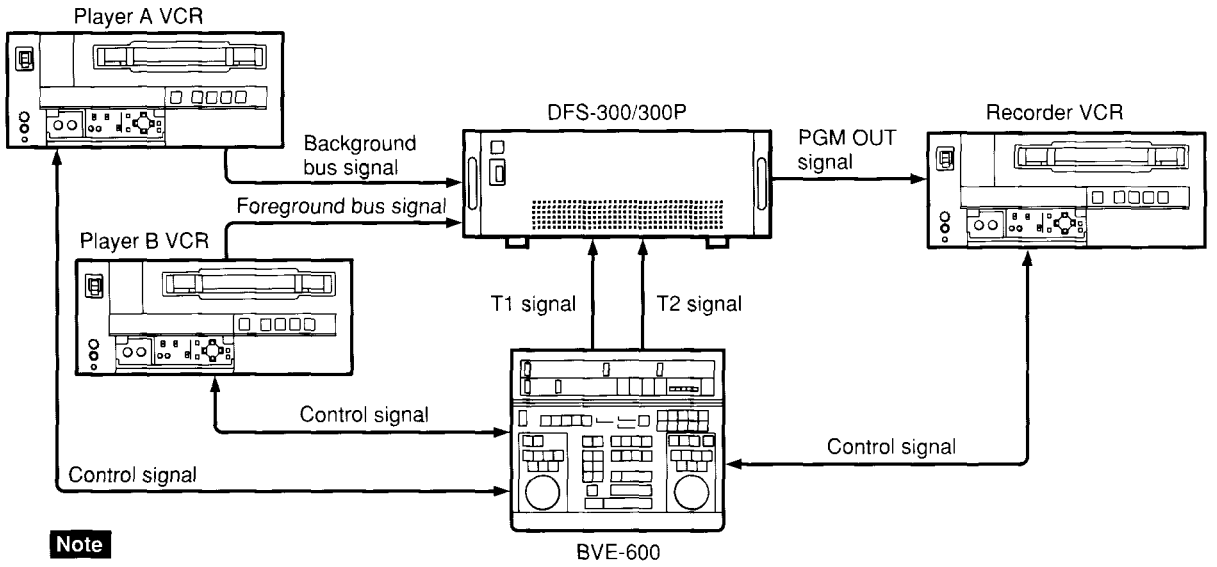



Timing of trigger signals in A-roll editing

# A/B Roll Editing

## Signal flow

The flow of signals in A/B roll with the BVE-600 editing is as follows.



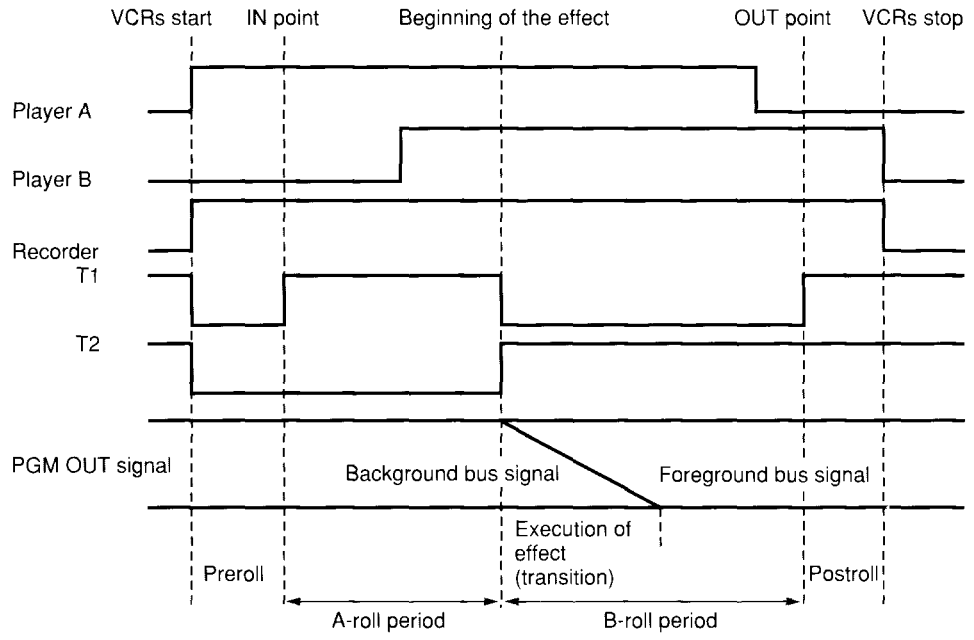

**Note**

To improve editing accuracy, supply a reference sync signal to the BVE-600 and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

## Timing of the trigger (T1/T2) signals

The timing of the trigger signals output by the BVE-600 is as follows.




Timing of trigger signals in A/B roll editing

# Control From the BVE-900/2000 Series

You can combine the DFS-300/300P with a BVE-900/910 or BVE-2000 Series Editing Control Unit to carry out A/B roll editing using two players and one recorder.
The editing control unit controls the DFS-300/300P using editor control signals and GPI signals.

## Connectable editing control units

To control the DFS-300/300P, the BVE-900/910/2000 and optional BKE-913 board (for BVE-900/910) must have the following ROM versions or higher.

| Editing control unit | ROM version |
|---|---|
| BVE-900 | v. 1.11 or higher |
| BVE-900 with BKE-900K | v. 2.01 or higher |
| BVE-910 | v. 1.02 or higher |
| BKE-913 | v. 1.06 or higher |
| BVE-2000 | v. 1.10 or higher |

## Control using editor control signals

You can control the following DFS-300/300P functions using 9-pin serial control signals from the BVE-900/910/2000. Input these signals to the EDITOR connector on the rear panel of the DFS-300/300P. (The BVE-900 can control the marked with an asterisk functions only after installation of the optional BKE-900K board.)

- Background picture (FROM source) and foreground picture (TO source) selection
- Pattern number selection
- Transition direction (normal or reverse) selection
- Transition duration selection
- Automatic transition execution
- Downstream key on and off
- Snapshot registration and recall*
- Data save and load (DFS-300/300P snapshot and user program data)*

## Downstream key control using GPI signals

You can use signals from the GPI output connector on the BVE-900/910/2000 to turn the DFS-300/300P downstream key function on and off. Input the GPI signals to the T2 connector on the rear panel of the DFS-300/300P. (The BVE-2000 can also use 9-pin serial control signals to turn the downstream key on and off and to set the transition duration.)

## Enabling and disabling control by the editor

To enable or disable control of the DFS-300/300P by 9-pin serial control signals and GPI signals, press the EDITOR/GPI ENABLE button on the control panel so that it lights (control enabled) or goes out (control disabled).

- **To enable or disable control by 9-pin serial control signals,** press the EDITOR/GPI ENABLE button alone.
- **To enable or disable control by GPI signals,** press the EDITOR/GPI ENABLE button while pressing the SHIFT button.
  To check whether GPI control is enabled, press the SHIFT button alone to see if the EDITOR/GPI ENABLE button lights (it lights when GPI control is enabled).

Control by both editor control signals and GPI signals is enabled when you power the DFS-300/300P on.

## Preparations

Make the following preparations to control the DFS-300/300P from the BVE-900/2000 series.

*For details about operation, refer to the Operating Instructions or User's Guide supplied with the editor.*

### On the DFS-300/300P

- To improve editing accuracy, supply a reference sync signal to the BVE-900/2000 series and VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.
- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.
- Check the EDITOR/GPI ENABLE button on the control panel to be sure that control by editor control signals or GPI signals is enabled.

*For details, see "Enabling and disabling control by the editor" on the previous page.*

### On the recorder VCR

Set the recorder VCR so that it enters PB (playback) mode when stopped.
If the VCR has a PB, PB/EE selector, set it to "PB".

### On the BVE-900/910

Set the PVW (preview) mode to EE.

- **BVE-900 with no BKE-900K installed:** In SYSTEM SETUP mode, set BYTE-1 of the MAIN BLOCK INTERFACE parameter to hexadecimal "01" (EE).
- **BVE-910 and BVE-900 with BKE-900K installed:** In SYSTEM SETUP mode, set PVW MODE under SW'ER CONFIGURATION to "EE".

### On the BVE-2000

- In SYSTEM SETUP mode, set PVW MODE under SW'ER CONFIGURATION to "EE".
- In SYSTEM SETUP mode, set SW'ER TYPE under SW'ER CONFIGURATION to "DFS".

## Notes on operation

### Editing point delay

Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the BVE-900/910 is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.

**Example:** If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

If you are using a BVE-2000 with a ROM version of 2.00 or higher, in SYSTEM SETUP mode under SYSTEM CONFIGURATION you can set the DIGITAL EFFECT DELAY item to 01 so that the BVE-2000 compensates for the delay automatically.

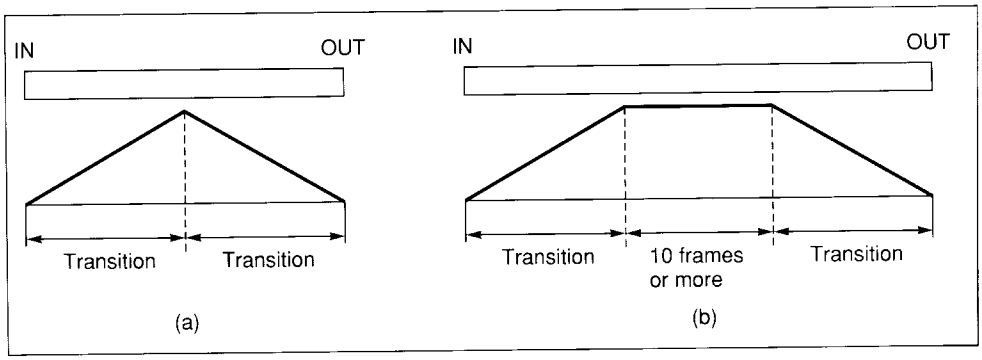
### Executing an effect in the reverse direction

- **To execute an effect in the reverse direction from the BVE-900/910,** add 3000 to the DFS-300/300P pattern effect number. However, add 500 to the pattern numbers of user program effects (pattern numbers 9000 and above).
  **Examples:**
  — To execute effect 25 in the reverse direction, specify pattern number 3025.
  — To execute effect 9203 in the reverse direction, specify pattern number 9703.
- **To execute an effect in the reverse direction from the BVE-2000,** add a minus sign [–] before the DFS-300/300P pattern number.
  **Example:** To execute effect 25 in the reverse direction, specify pattern number –25.

### Effect intervals

Effects cannot be executed if there is no interval between transitions, as shown below in figure (a).

Be sure to leave an interval of 10 frames or more between transitions, as shown in figure (b).




Minimum interval between transitions

# Control Using GPI Signals

You can combine the DFS-300/300P with any editing control unit capable of GPI signal output (often called "GPI editor" for simplicity in this manual) to carry out A-roll editing using one player and one recorder, and A/B roll editing using two players and one recorder.
You can use one GPI signal to execute DFS-300/300P effects, and a second GPI signal to turn the downstream key function on and off.

## Preparations

Make the following preparations to control the DFS-300/300P using GPI signals output by the editing control unit.

*For details about operation, refer to the manuals supplied with your editing control unit.*

### On the DFS-300/300P

- Power the DFS-300/300P off, and set the editing control unit select switch on the internal SY-199 board to "PVE-500". Then power the DFS-300/300P on.

  *For more information about the editing control unit select switch, see page 2-22.*

- Press the SHIFT button on the control panel, and check to be sure that the EDITOR/GPI ENABLE button lights (it lights when control by GPI signals is enabled).
  If it does not light, keep the SHIFT button held down and press it so that it does light. Control by GPI signals is enabled when the DFS-300/300P is powered on,
- **If you want to carry out A-roll editing,** check to be sure that the FREEZE FIELD button on the control panel is lit. Note that you must extinguish this button when you execute a cut.
- **If you want to carry out A/B roll editing,** press the FREEZE FIELD button so that it goes out.

### On the recorder VCR

- Set the recorder VCR so that it enters PB (playback) mode when stopped.
  If the VCR has a PB, PB/EE selector, set it to "PB".
- If the VCR has a built-in TBC, set the VCR to DELAYED SYNC mode.

### On the editing control unit

- Set the GPI signal output timing to 2 frames before the IN point.
- Set the GPI signal pulse width to 1 frame or greater.

**Notes**

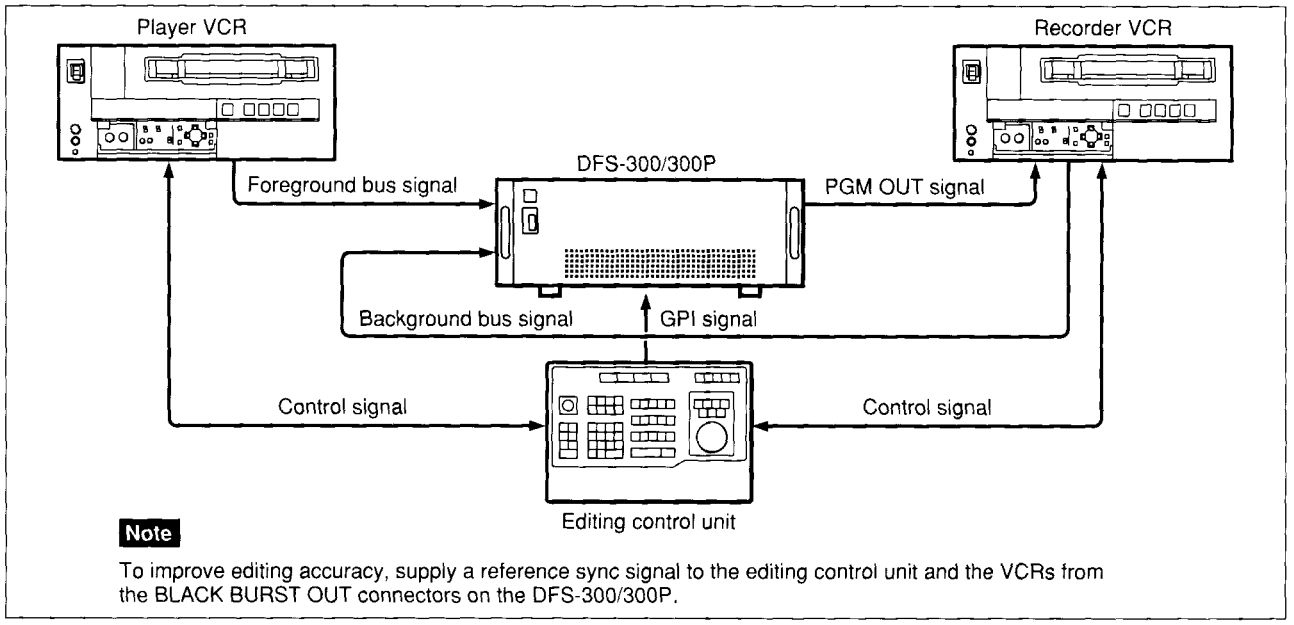
- To display the background picture during or after a transition, press the lit BACKGROUND bus button on the DFS-300/300P.
- Because the DFS-300/300P has a built-in frame synchronizer, output of player VCR edit points set on the editing control unit is delayed by 1 frame, so that recording begins with the previous frame. However, recorder edit points are not delayed.
  **Example:** If the IN point of the player VCR is set to 00:00:10:15, recording begins from 00:00:10:14.

# A-Roll Editing

## Signal flow

The flow of signals in A-roll editing with GPI editors is as follows.

*For more information about connections, see "A-Roll Editing System Connections" (page 7-4).*



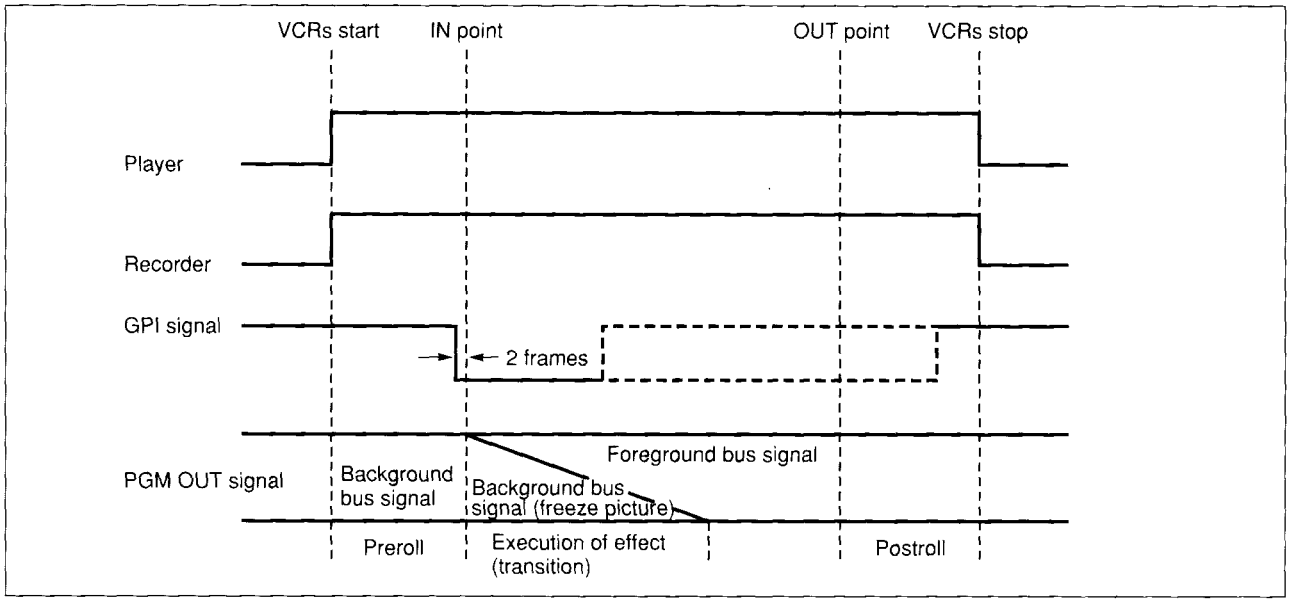

**Note**

To improve editing accuracy, supply a reference sync signal to the editing control unit and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A-roll editing

## Timing of the GPI signal

The timing of the GPI signals from the editing control unit is as follows.



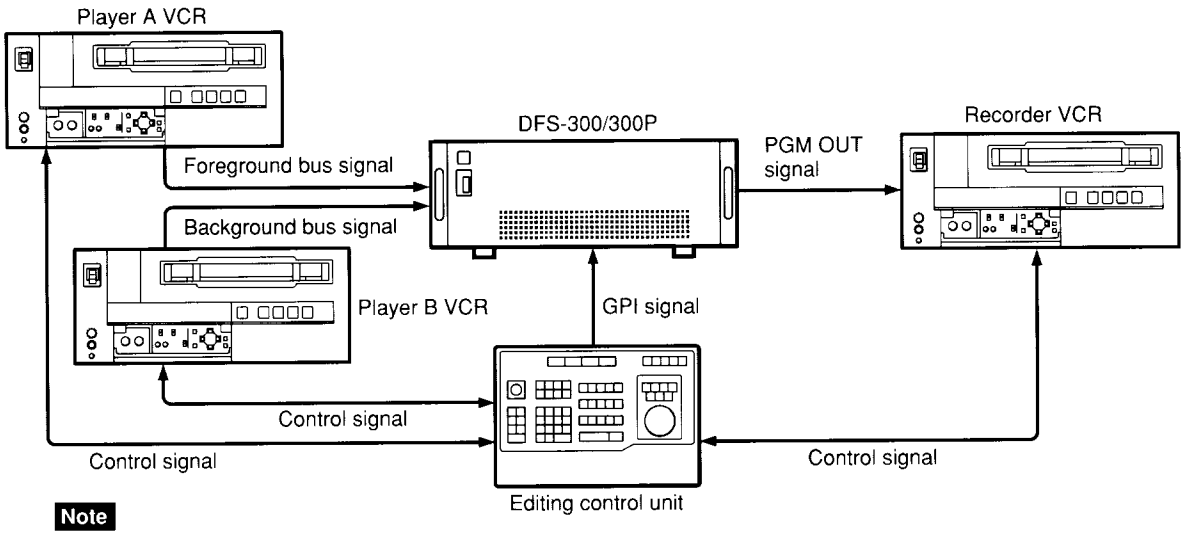

GPI signal timing in A-roll editing

# A/B Roll Editing

## Signal flow

The flow of signals in A/B roll editing with GPI editors is as follows.

*For more information about connections, see "A/B Roll Editing System Connections" (page 7-5).*



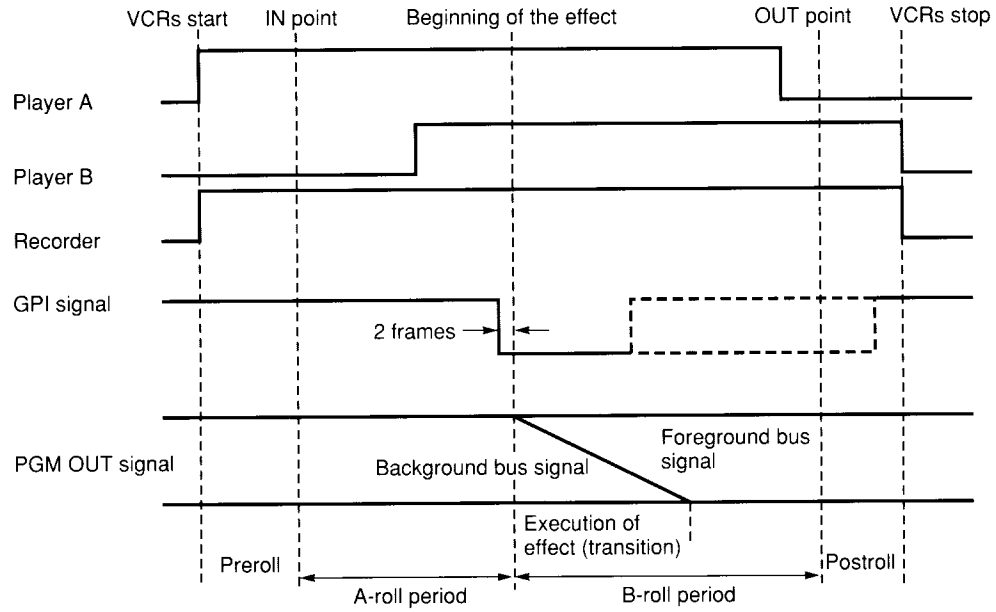

**Note**

To improve editing accuracy, supply a reference sync signal to the editing control unit and the VCRs from the BLACK BURST OUT connectors on the DFS-300/300P.

Signal flow in A/B roll editing

## Timing of the GPI signal

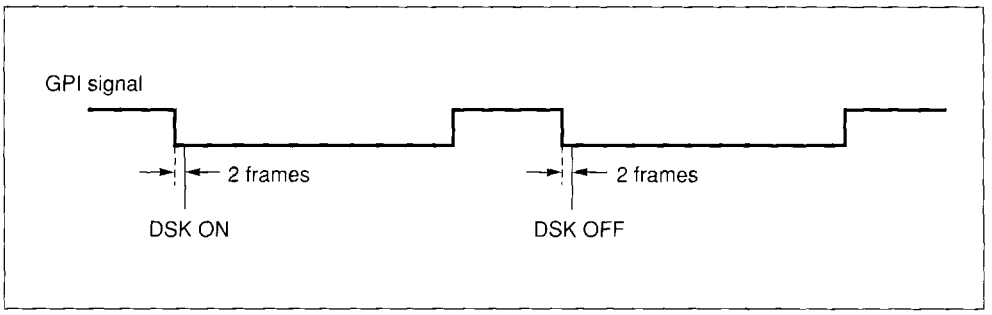
The timing of the GPI signal from the editing control unit is as follows.




Timing of GPI signal in A/B roll editing

## Turning a downstream key on and off

If you have set the editing control unit select switch to "PVE-500", you can turn a downstream key on and off using a GPI signal input to the T2 connector on the DFS-300/300P. As shown below, the downstream key is turned alternately on and off at the trailing edge of the GPI signal.




Turning a downstream key on and off — GPI signal timing

# Chapter 7
# Connections and System Settings

This chapter describes how to connect the DFS-300/300P to your video system, how to set its internal switches, and how to install the BKDF-504/504P DSK Board.

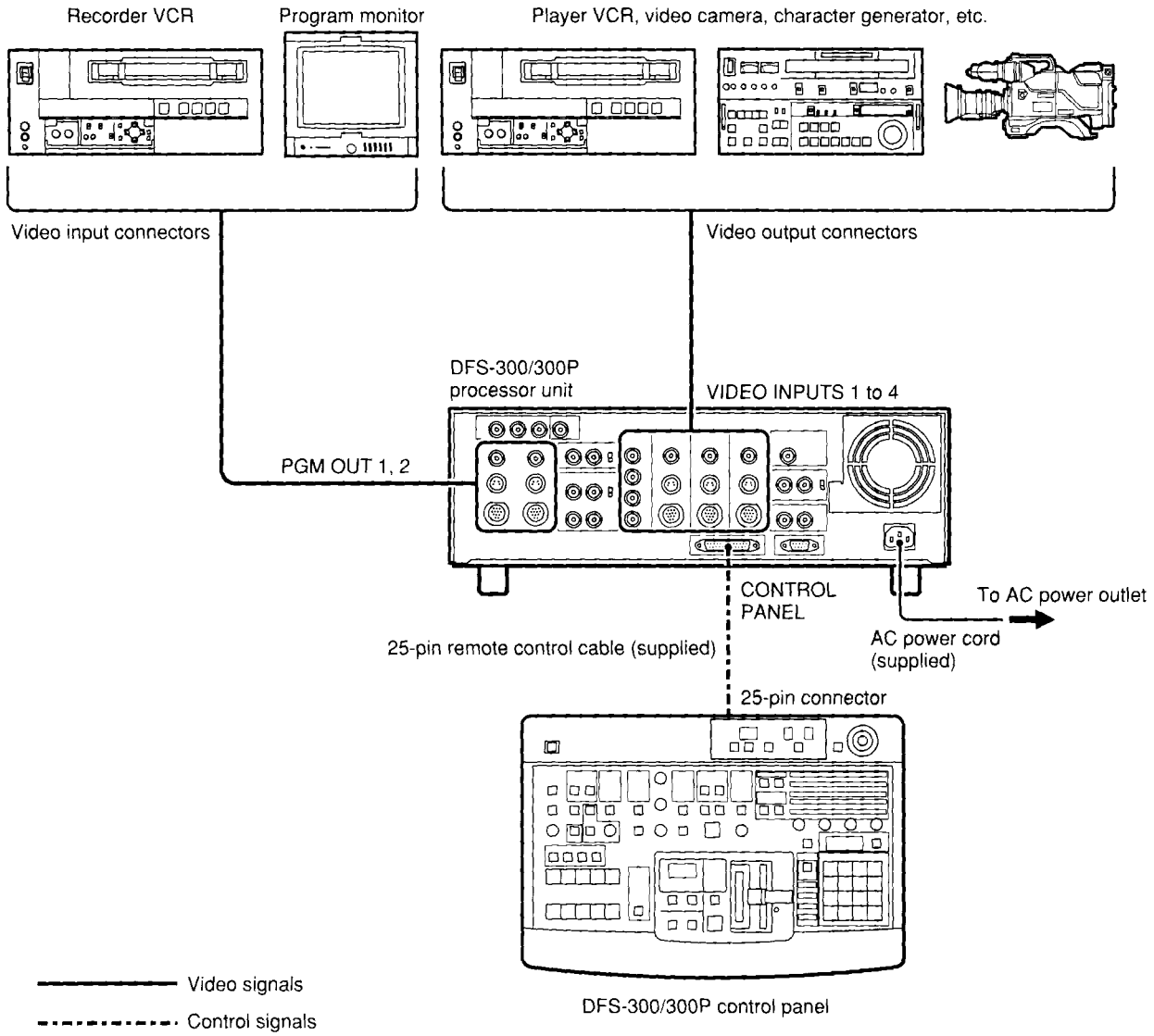
**Connections** ..... **7-2**
Essential System Connections ..... 7-2
Key Signal Connections ..... 7-3
A-Roll Editing System Connections ..... 7-4
A/B Roll Editing System Connections ..... 7-5
**Settings of the Internal Switches** ..... **7-7**
**Power Supply and Initialization** ..... **7-8**
**Installation of Optional Boards** ..... **7-10**

# Connections

Be sure to power off all equipment before making any connections.

## Essential System Connections

The connections for essential input and output signals are shown below.

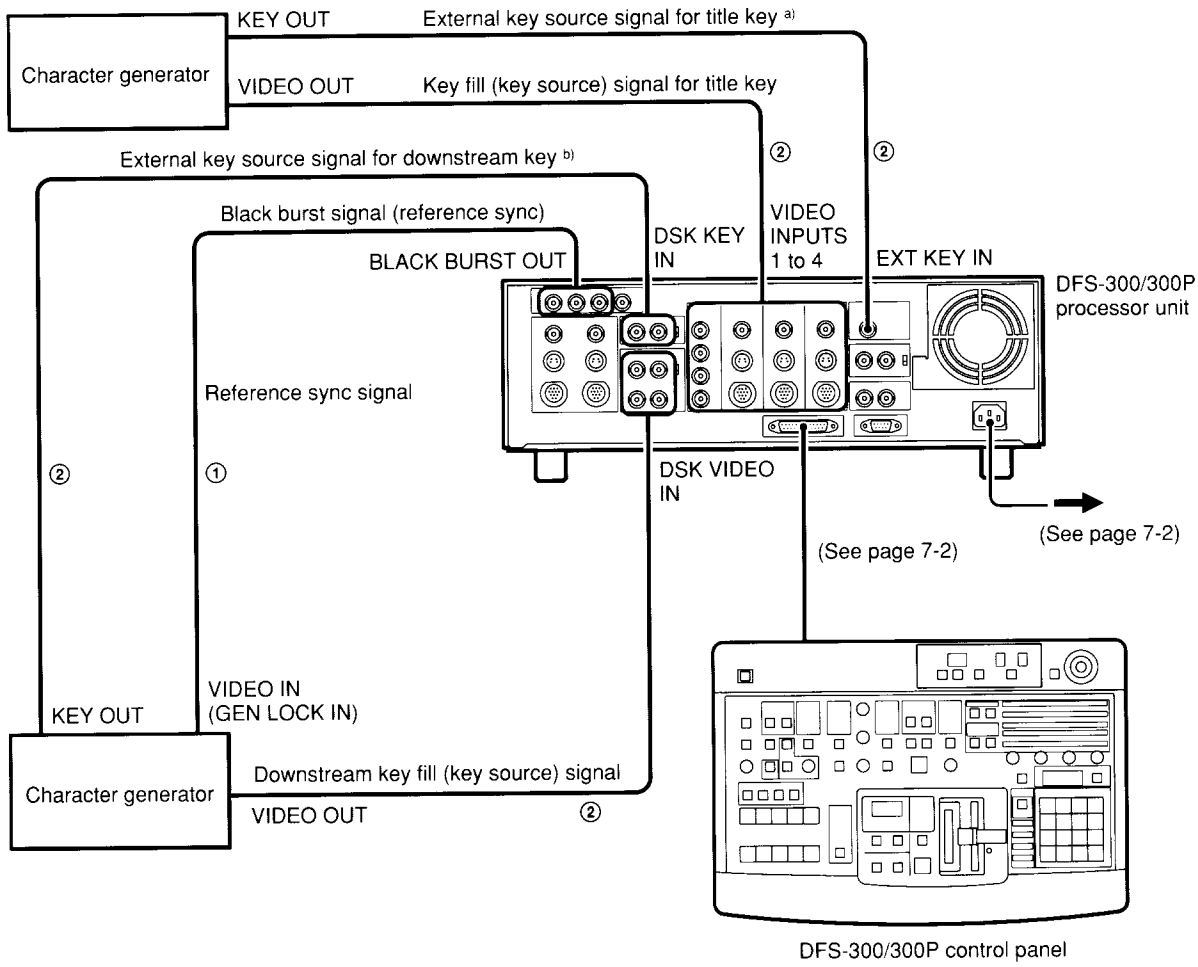



The cable used to connect the DFS-300/300P and a VCR depends on the type of VCR. Refer to the instruction manual provided with your VCR.

Essential system connections

# Key Signal Connections

Below are the connections necessary for title key and downstream key (DSK) signals. These signals allow you to superimpose characters and graphics on a picture.




Cables
① 75Ω coaxial cable
② Cable depends on the type of character generator. Refer to the instruction manual provided with the character generator.

a) This connection is unnecessary when the luminance signal of a signal input to a VIDEO INPUTS connector is used as the title key source signal.
b) This connection is unnecessary when the luminance signal of the signal input to the DSK VIDEO IN connector is used as the downstream key source signal.

Key signal connections

**Notes**

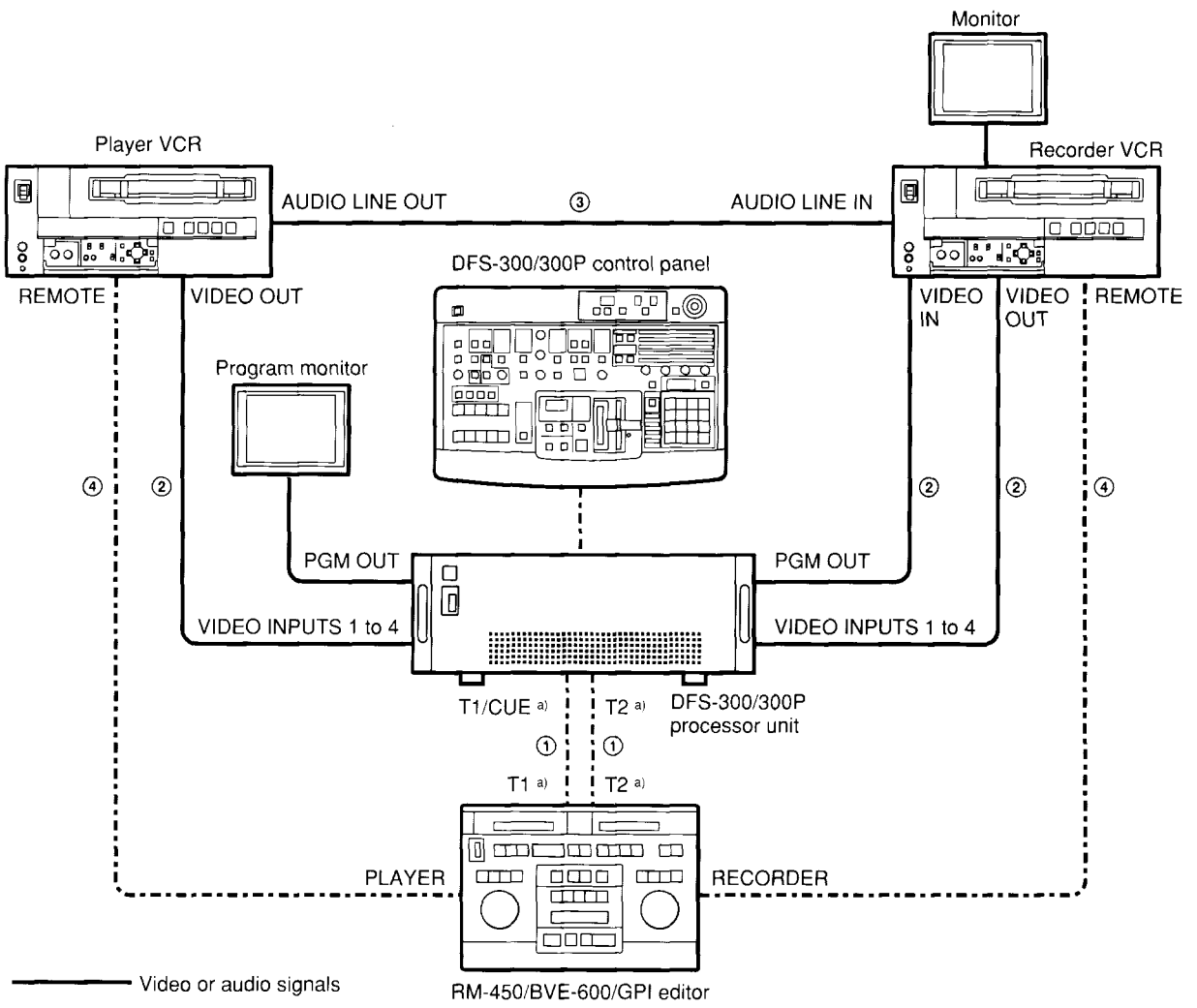
- Downstream key signals must be synchronized with the internal sync signal of the DFS-300/300P. Be sure to supply a signal from the BLACK BURST OUT connectors to the downstream key source equipment.
- Title key and downstream key signals are processed in 1 bit. If you cannot obtain the desired key shape when using VCR playback as the key source, supply high-quality key signals from equipment such as a character generator.

# A-Roll Editing System Connections

The following diagram indicates the connections necessary to construct an A-roll editing system comprised of the DFS-300/300P, the RM-450 or BVE-600 Editing Control Unit, a player VCR, and a recorder VCR. You can also use this configuration to construct an A-roll editing system around other editors that support output of GPI signals.

**Note**

You cannot use the RM-440 Editing Control Unit with the DFS-300/300P.




Cables

① 75Ω coaxial cable

② Cable depends on the type of VCR. Refer to the instruction manual provided with the VCR.

③ Cable with XLR 3-pin connectors

④ RCC-5G/10G/30G 9-pin remote control cable or RCC-5F 33-pin remote control cable

a) Connections between the DFS-300/300P and the editing control unit are as follows.

RM-450: Connect the CUE signal of the RM-450 to the T1/CUE connector of the DFS-300/300P.

BVE-600: Connect the T1 and T2 signals of the BVE-600 to the T1/CUE and T2 connectors of the DFS-300/300P, respectively.

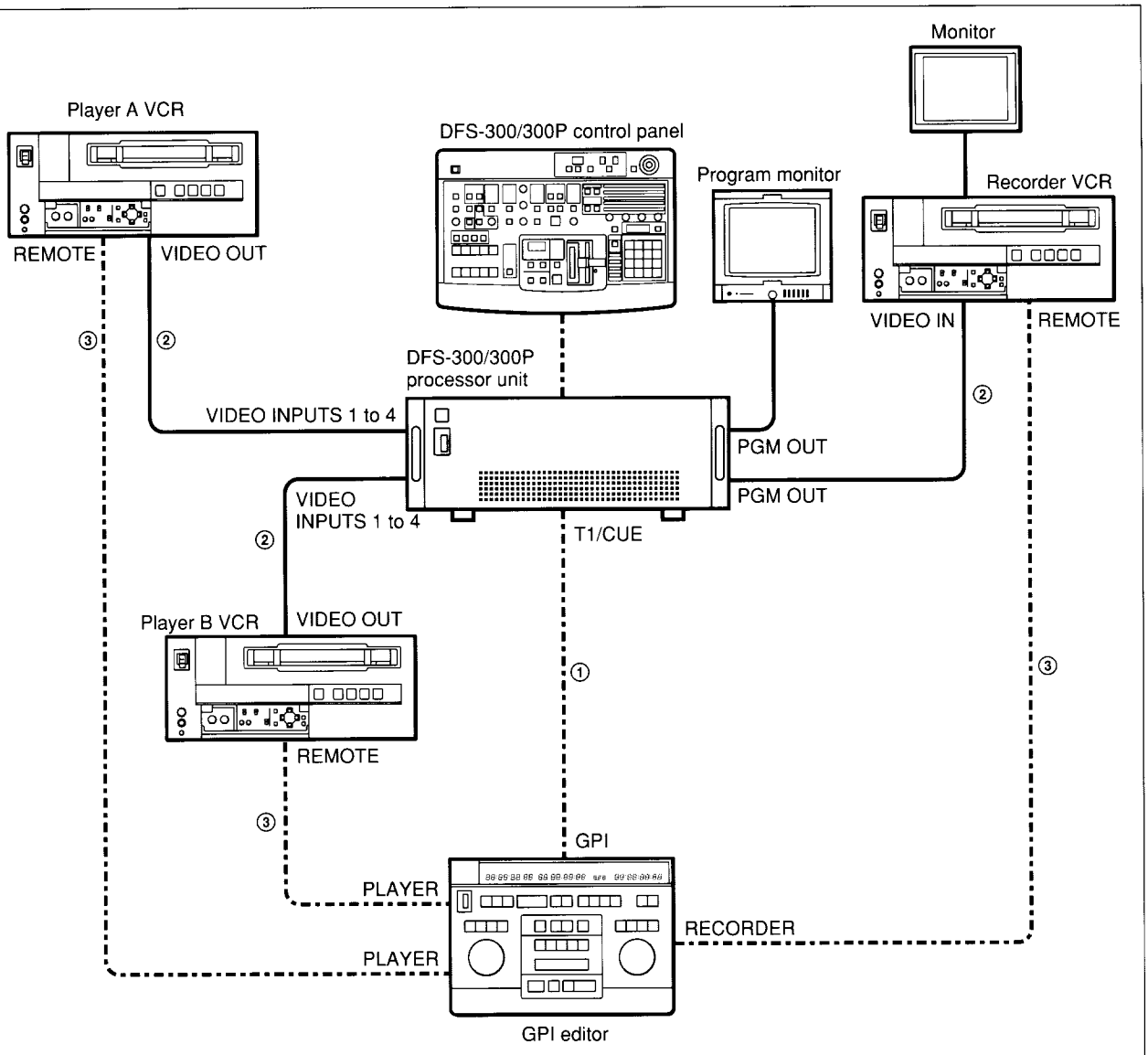
GPI editor: Connect the GPI output signal of the editor to the T1/CUE connector of the DFS-300/300P.

A-roll editing system connections

# A/B Roll Editing System Connections

The following diagram indicates the connections necessary to construct an A/B roll editing system comprised of the DFS-300/300P, the PVE-500 or BVE-600/900/910/2000 Editing Control Unit, two player VCRs, and a recorder VCR. You can also use this configuration to construct an A/B roll editing system around other editors that support output of GPI signals.

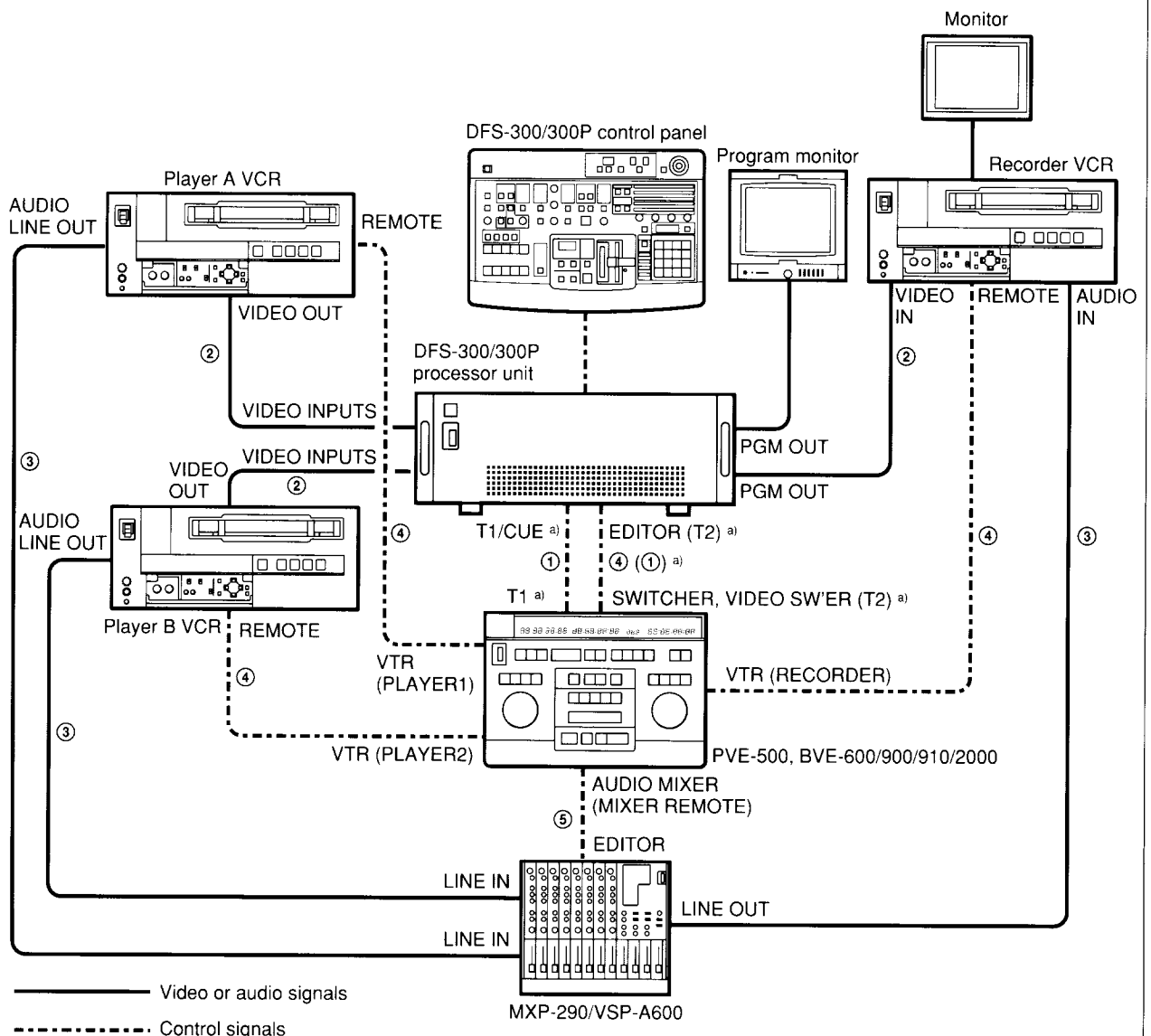
## Using GPI signals




Cables
① 75Ω coaxial cable
② Cable depends on the type of VCR. Refer to the instruction manual provided with the VCR.
③ RCC-5G/10G/30G 9-pin remote control cable or RCC-5F 33-pin remote control cable

A/B roll editing system connections (1) — Using GPI signals

## Using the PVE-500, BVE-600/900/910/2000




Cables

① 75Ω coaxial cable
② Cable depends on the type of VCR. Refer to the instruction manual provided with the VCR.
③ Cable with XLR 3-pin connectors
④ RCC-5G/10G/30G 9-pin remote control cable
⑤ Audio mixer control cable (PVE-500: RCC-5AA; BVE-600: supplied; BVE-900/910: supplied with BKE-916A; BVE-2000: RCC-11A)

a) Connections between the DFS-300/300P and the editing control unit are as follows.
PVE-500: Connect the SWITCHER connector of the PVE-500 to the EDITOR connector of the DFS-300/300P.
BVE-600: Connect the T1 and T2 signals of the BVE-600 to the T1/CUE and T2 connectors of the DFS-300/300P, respectively.
BVE-900/910/2000: Connect the VIDEO SW'ER connector of the BVE-900/910/2000 to the EDITOR connector of the DFS-300/300P.

A/B roll editing system connections (2) — Using the PVE-500, BVE-600/900/910/2000

**Note**

Optional interface boards (BKE-904, BKE-913, BKE-916A) must be installed in the BVE-910 to enable connections to the DFS-300/300P, the VCRs, and the MXP-290 or VSP-A600.

*For details, refer to the instruction manual of the BVE-910.*

# Settings of the Internal Switches

When you have completed the connections, set the switches below according to the connected equipment.

**Notes**

- Changing the settings has no effect while the processor unit is powered on. Always power the processor unit off before setting the switches.
- You also need to change settings on editing control units, video switchers, and other connected equipment.

*For details, see Chapter 6 "Control From Editing Control Units"*

## Setting the input signal format: IN 1, 2, 3, 4 switches (AD-104 board)

*For the positions of these switches, see page 2-21.*

Set these switches according to the format of the video signals input to the VIDEO INPUTS 1, 2, 3, 4 connectors on the rear panel.

### IN 1, 2, 3 switches

Set the format of the signals input to the VIDEO INPUTS 1, 2, 3 connectors.
**COMPOSITE (left):** Composite video signal
**Y/C (center):** S-video (Y/C separate) signal
**COMPONENT (right):** Betacam-format component video signal
All three switches are factory preset to "COMPOSITE".

### IN 4 switch

Set the format of the signal input to the VIDEO INPUTS 4 connector.
**Y/R–Y/B–Y (left):** Betacam-format component video signal
**RGB (center):** RGB signal, G signal with SYNC
**RGBS (right):** RGB signal, G signal without SYNC
When you select RGBS format, you must input a sync signal to the VIDEO INPUTS 4 SYNC connector.
This switch is factory preset to "Y/R–Y/B–Y".

## ietting the control mode: editing control unit select switch (SY-199 board)

*For the position of this switch, see page 2-22.*

Set the switch according to the connected editing control unit.
**RM-450:** RM-450 Editing Control Unit
**BVE-600:** BVE-600 Editing Control Unit
**PVE-500:** PVE-500 or BVE-900/910/2000 Series Editing Control Unit. Set the switch to this setting when using the DFS-300/300P as a stand-alone unit without connecting an editor, or when controlling it with GPI signals.
This switch is factory preset to "PVE-500".

## Setting the DSK key fill signal format: DSK VIDEO SELECT switch (DA-79 board)

*For the position of this switch, see page 2-23.*

Select the format of the video signal input to the DSK VIDEO IN connector on the rear panel.
**COMPOSITE:** Composite video signal
**Y/R–Y/B–Y:** Betacam-format component video signal with luminance (Y) and color difference (R–Y, B–Y) components.
**R/G/B:** RGB signal
This switch is factory preset to "R/G/B".

# Power Supply and Initialization

## Power supply

The DFS-300 operates on 120 V AC power (90 to 132 V AC, 48 to 63 Hz), and the DFS-300P on 220 to 240 V AC power (180 to 264 V AC, 48 to 63 Hz). Connect the unit to an appropriate power source using the supplied AC power cord.

### About the backup battery

When you power the DFS-300/300P on to use it for the first time, the control panel is set to the factory default settings. When you power it on for the second and subsequent times, the unit's resume function sets the control panel to the settings in force when the power was turned off.
Power for the resume function and other system memory functions is drawn from a nickel-cadmium backup battery located on the SY-199 board inside the processor unit. Before using the DFS-300/300P for the first time, charge the battery fully by leaving the DFS-300/300P on for at least 8 hours.
If the DFS-300/300P is not used for a month or more, the battery loses its charge and your data for items ① to ④ below is lost. In this case, a warning message appears when the unit is next powered on to warn you that data has been lost and that the control panel and system settings have been initialized to the factory defaults. To prevent this from happening, you should turn the DFS-300/300P on occasionally to keep the battery charged.
① Control panel settings in force when power is turned off (resume function)
② User program effect data
③ Snapshot data
④ Direct pattern assignments

*About warning messages, see "Warnings and Error Messages" (pege A-2).*

### Replacing the backup battery

The backup battery is guaranteed to last for about 5 years under normal operating conditions. Replace it with a new one at the appropriate time.
Regarding battery replacement, contact your Sony dealer or an authorized Sony representative.

**Note**

Data items ① to ④ listed on the previous page are lost when the battery is replaced. After replacing the battery, leave the DFS-300/300P on for at least 8 hours to charge it fully.

**For customers in the USA and Canada**

## RECYCLING NICKEL-CADMIUM BATTERIES

**Ni-Cd**

**NICKEL-CADMIUM BATTERY.**
**MUST BE DISPOSED OF PROPERLY.**

Nickel-Cadmium batteries are recyclable. You can help preserve our environment by returning your unwanted batteries to your nearest Sony Service Center or Factory Service Center for collection, recycling or proper disposal.

**Note:** In some areas the disposal of nickel-cadmium batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
For the Factory Service Center nearest you call 416-499-SONY (Canada only)

**Caution:** Do not handle damaged or leaking nickel-cadmium batteries.

## Initializing control panel and user data to the factory defaults

### Initializing the control panel to the factory defaults

If you lose track of control panel settings during a complicated operation, you can recall the factory default settings with the following procedure. (Note that it does not help to turn the DFS-300/300P off and on again, because the current settings will be recalled by the resume function.)

**1** If the EDIT button in the USER PGM section is lit, press it so that it goes out.

**2** Press the EDITOR/GPI ENABLE button while holding down the P IN P/RST and DOWN buttons in the keypad section.

A buzzer sounds, and the factory default settings are restored.

### Initializing the control panel and user data at the same time

To restore all direct pattern assignments, user program data, snapshot data, and control panel settings to the factory defaults, power the DFS-300/300P on while holding down the P IN P/RST and DOWN buttons in the keypad section.

### Initializing user data only

See the pages listed below for the procedures used to initialize user data.

- Direct pattern assignments: page 5-3
- User program data: page 5-19
- Snapshot data: page 5-23

# Installation of Optional Boards

Two optional boards are available for installation in the DFS-300/300P: the BKDF-301/301P 3D Effect Option, and the BKDF-504/504P DSK Board.

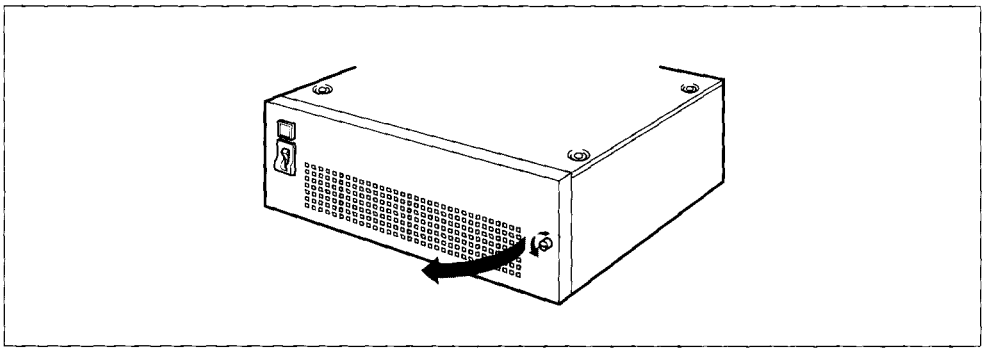
- To install the BKDF-301/301P board, refer to the installation instructions supplied with the board.
- To install the BKDF-504/504P board, read the following and contact your Sony dealer.
  The installation instructions supplied with the BKDF-504/504P board show how to install the board in the DFS-500/500P DME switcher. The position, name, and diagrams given for the internal board in the installation instructions do not apply to the DFS-300/300P, and the ROM exchange mentioned in the installation instructions is not necessary when installing the BKDF-504/504P board in the DFS-300/300P.

**Contact your Sony dealer before installing these optional boards.**

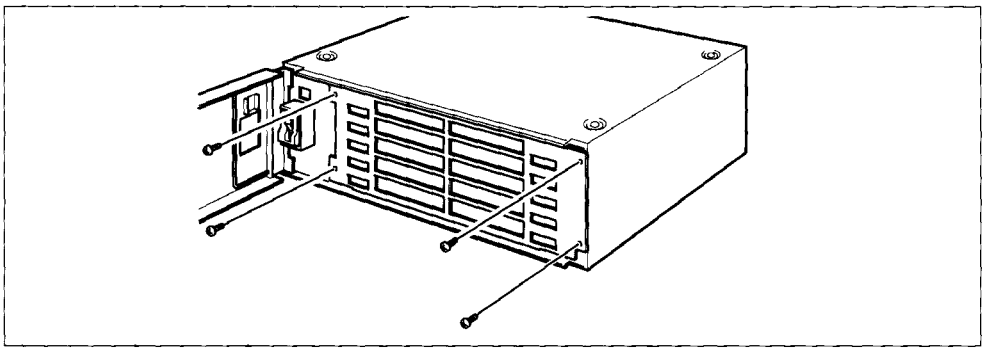
## Installing the BKDF-504/504P DSK Board

The optional BKDF-504/504P DSK Board provides a downstream key function for the DFS-300/300P. It installs on the DA-79 board inside the processor unit. To install the BKDF-504/504P board, proceed as follows.

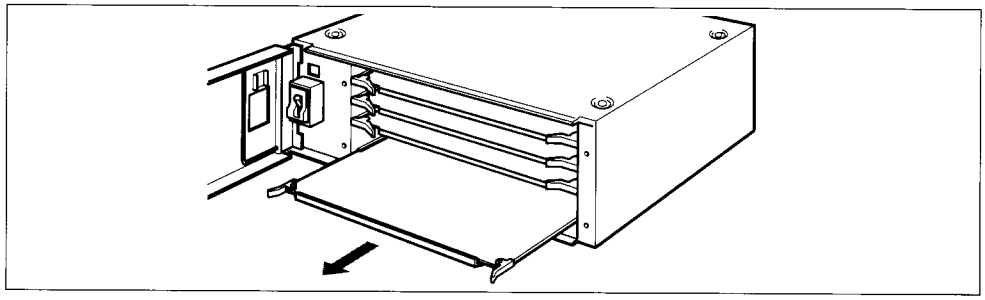
**1** Power the DFS-300/300P processor unit off, and loosen the screw to open the front panel.



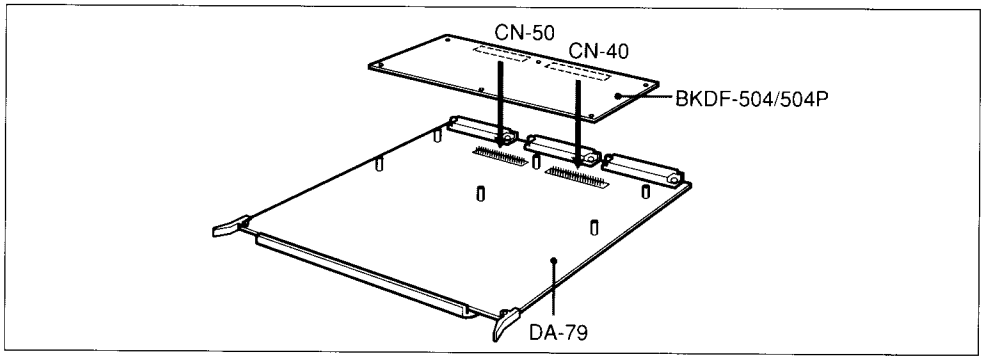
**2** Remove the circuit board retainer plate.



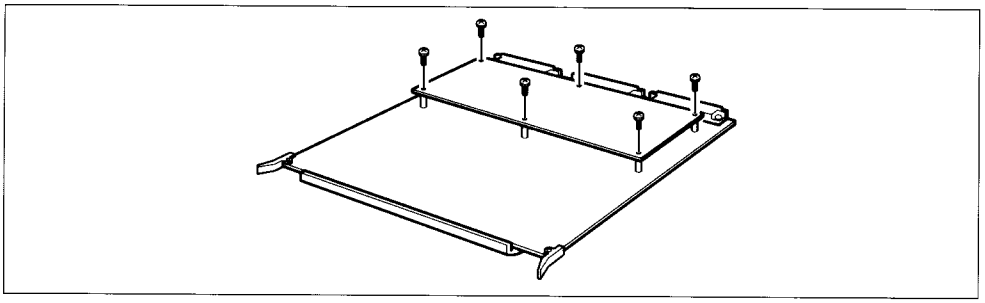
**3** Remove the DA-79 board from the lowermost slot by opening the right and left levers toward the outside.



**4** Press the CN-40 and CN-50 connectors on the BKDF-504/504P board into the CN-40 and CN-50 connectors on the DA-79 board. Press firmly until they make a complete connection.




**5** Fasten the BKDF-504/504P board to the DA-79 board, using the six screws supplied with the DFS-300/300P.



**6** Return the DA-79 board to its original position in the processor unit.